BUILDING THE PACIFIC RAILWAY

BY EDWIN L. SABIN

S. I. WORMSER

BUILDING THE PACIFIC RAILWAY

THE FINAL ACT

Probably the best photograph extant of the gathering at Promontory Summit, May 10, 1869, where the golden spike was driven. In center, holding silver maul, Central President Stanford. On his left U. P. Consulting Engineer Silas Seymour (face); U. P. Vice-President Durant (with sledge), U. P. Director John Duff (white-haired), Chairman Sidney Dillon (with side-whiskers). In front of Duff, U. P. Chief Engineer Dodge; in front of the girl, C. P. Chief Engineer Montague. Right of Stanford, C. P. Construction Superintendent Strobridge with spade. The two women are Mrs. Strobridge and Mrs. Ryan. The boy, Sam Strobridge. To right of Mrs. Ryan (fore) Rev. Mr. Todd (full face).
Photograph by Courtesy of J. K. Knowland, Oakland "Tribune"

BUILDING THE PACIFIC RAILWAY

THE CONSTRUCTION-STORY OF AMERICA'S FIRST IRON THOROUGHFARE BETWEEN THE MISSOURI RIVER AND CALIFORNIA, FROM THE INCEPTION OF THE GREAT IDEA TO THE DAY, MAY 10, 1869, WHEN THE UNION PACIFIC AND THE CENTRAL PACIFIC JOINED TRACKS AT PROMONTORY POINT, UTAH, TO FORM THE NATION'S TRANSCONTINENTAL

BY

EDWIN L. SABIN

WITH 22 ILLUSTRATIONS AND A MAP

What was it the engines said,
Pilots touching—head to head,
Facing on the single track,
Half a world behind each back?
—BRET HARTE.

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TO

MR. FRANK A. WADLEIGH, P. T. M.

DENVER & RIO GRANDE R. R.

AN INSPIRING EXECUTIVE WHOSE DAILY SCHEDULE
NEVER GIVES BUSINESS PRECEDENCE OVER COURTESY

FOREWORD

FIFTY years have passed since most of the events noted within this volume were new. On May 10, 1869, at Promontory Point, fifty-six miles northwest of Ogden, Utah, the last rails were laid and the last spike was driven, completing the Pacific Railway for quick traffic between the East and the West.

Two distinct books might be written upon the construction of the Union Pacific Railroad from the Missouri River, and of the Central Pacific Railroad from the Sacramento River—those iron trails that lengthened westward and eastward until they crossed the vacant space of 1770 miles and joined in the Utah desert.

The one book should focus upon the actual building operations in the great open of plains, mountains and deserts; the other, upon the financial operations by the Crédit Mobilier of the Union Pacific, and by Crocker & Co. and the Finance Company of the Central Pacific.

The pages which here follow aim at providing the first-mentioned story. They are devoted mainly to the stress, the sweat, the toil by mind and body in order to achieve the physical problems. Deeds and romance a-plenty may be found, without resort to those disputed details that once made great names common property and are now relatively unimportant. That past is dead; an undying path brightens in the swath of Time.

The writer of the present book wishes to tell only

how the Pacific Railway, the wonder of its age and of any age, came into being; how Lincoln, Judah, Huntington, Stanford, Crocker, the Ameses, Durant, Dillon, Dodge, General Sherman, the two doughty Casements, the surveyors, the train crews, the laborers —Americans, Irishmen, Chinamen, Mormon settlers— all generously backed it, a young giant, in its relay race through half a continent, to the goal attained within six years instead of the allotted fourteen.

The performance was typically American—the eighth wonder of the world, and unsurpassed to this day. Heroes attended upon the march of the rails. Some died in line of duty; as far as the writer knows, every department official, save one, of construction times, is dead. The Ames monument, so long lonely and near forgotten upon the Sherman Summit of the Wyoming Black Hills, and the neglected pedestal of triumph at distant Promontory, are punctuations in pages of historic endeavor by a host named and unnamed.

The work itself, however, is not all forgotten. It was completed at the close of one great war, and was commemorated at the close of another. On May 10, 1919, there gathered at Ogden of Utah a remarkable concourse, representing the breadth and growth of the United States, who celebrated the semi-centennial of the driving of the Golden Spike. More remarkable, a thousand names were enrolled of men and women who, some of them as children, assisted in laying those rails that "banded the continent and wedded the oceans."

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BUILDING THE PACIFIC RAILWAY

I

The Start

That monument to American energy—the union of the East and of the Farthest West by a single iron highway almost 1800 miles long—was thirty years in the planning although only six years in the erecting. With those six, and especially with the last three, when, in hot rivalry, twain companies, facing opposite and pitting blood against blood, forged into their strides of two, five, seven, ten miles in a day, this narrative has chiefly to do.

Over 1100 miles of double rails laid by hand in thirteen months, by two companies racing to meet: such is the record.[1]

The Pacific Railway was nurtured through its infancy upon visions that seem fantastic to us now, yet were no more so than the prophecy of the new power as

[1] This closely approaches an average of three miles of track a day, in desert and mountain country. As a comparison, it may be noted that the American army engineers in France, in 1918, achieved the mark of 130 miles of track in 100 days—being about one and one-third miles in a day. The Pacific Railway builders had no assistance from steam shovels, steam derricks, and the like. The first transcontinental was a "hand-made" road.

spouted by the famous tea-kettle; than the genesis of the undersea boat in Jules Verne's remarkable romance, and the promise of the oversea boat as given form and substance in Robert Fulton's derided *Clermont.*

The very inception of the great project of a transcontinental steam road dates exactly one hundred years ago, when, in 1819, fifteen years after Richard Trevithick applied the first steam locomotive to the Welsh trams, the American Robert Mills proposed a steam carriage, to run from the head of the Mississippi Valley to the valley of the Columbia. The notion was so outrageous that it was rightfully looked upon as a chimera —especially when, the next year, the proposition of the Englishman Thomas Gray for steam passenger service between Liverpool and Manchester was summarily dismissed. Half a century later, and the longest railroad in the world crossed American soil.

The definite first bubble that really broke the surface of public thought in the United States was symptomatic of the rising national spirit. Back in early 1832 a writer pioneer, unknown by name, in the *Emigrant,* a weekly paper issued at Ann Arbor, Michigan, prefacing his proposition by another proposition that "it is nobler to fail in a great undertaking than to succeed in a small one," modestly suggested a plan for a railroad from New York, by way of the Lakes and the Platte Valley, to Oregon.

We of a later day, when invention and population have made rough paths smooth, may fittingly take off

our hats to this untried Livingstone of a Dark Continent. The year, 1832; the territory of the United States, west of the Mississippi, narrowly fringed with white, and extending red and wild and practically unmapped for 1000 miles to the Rocky Mountains; beyond the barrier Rockies, all alien territory except for the Oregon Country, and this Oregon Country, the proposed terminus, doubtful ground.

That the feeble locomotives of the times could store fuel enough *en route* across the plains; that they could combat the mighty slopes and excessive altitudes; that there could be traffic enough to warrant maintenance of train service; that the routes could be adequately protected against weather and savages; that laborers could be fed even if secured; that Mexico or England would look with favor upon such an invasion by the Yankees—required a prodigy of faith. In all the United States there were but 140 miles of railroad, from an experimental two years, and here it was proposed to build and operate 3000 miles in a straightaway beset like a Pilgrim's Progress!

However, the bubble was true harbinger of an event that should astonish the world. The germ idea by the article in the *Emigrant* persisted.

Dr. Hartwell Carver, of Rochester, New York, grandson of the immortal Jonathan Carver whose 7000 miles of travel through the Indian Northwest was as audacious as the projected railroad scheme, claimed to have discovered the same idea in the same year,

1832, and to have memorialized Congress for such a highway, of iron rails upon stone foundations, over which palace sleeping-cars sixteen feet long should run between New York and San Francisco Bay!

At any rate Dr. Samuel Barlow, of Massachusetts, revives the discussion by an article in the *Intelligencer,* 1833. In the *Knickerbocker Magazine* of 1836 Lewis Gaylord Clarke asserts fathership. In his "Tour Beyond the Rocky Mountains," published in 1838, the Rev. Samuel Parker, of the pioneer Protestant missionaries upon the Oregon Trail to the Columbia, declares that a railroad from the Atlantic to the Pacific is entirely practicable. The energetic Lilburn W. Boggs, early governor of Missouri, and worthy representative of the noted Boggs family of the old Santa Fé Trail, in 1843 draws up a scheme for the railroad, with estimate of cost. In 1844 Senator Thomas H. Benton, the doughty expansionist and ambitious father-in-law to an equally ambitious explorer, predicts that men then full-grown would live to see "Asiatic commerce" crossing the mountains by rail for the Atlantic coast.

The genius of the Pacific Railroad had taken the guise of a beneficent Asia—of an Orient that should pour its riches into the lap of America. The spices, the teas, the precious woods and fabrics of a Cathay should travel by steamship across the Pacific and by rail across the Western Continent, to heap the warehouses of New York. Imports and exports were to be quickened, Europe should be dependent upon this cut-off

between West and East, and the Pacific Railroad should thrive upon the long haul rather than upon local traffic.

In the workout, over 90 per cent. of the revenue was derived from the local traffic. But this condition would not have obtained in the beginnings.

Meanwhile the Iowan, John Plumbe, Esq., had arisen. For four years, from 1836 to 1840, he worked by arguments written and spoken; the first of the "railroad meetings," at Dubuque in 1838, is historic; he memorialized Congress, received attention favorable and adverse, and in 1847 was awarded in public assembly the title "Original Projector of the great Oregon Railroad." Fifteen years after, his plan was embodied in the first of the National Pacific Railroad acts.

Now we arrive at the lamented Asa Whitney, the most thoroughgoing of all that file of enthusiasts: Asa Whitney, the New York merchant and Oriental traveler, who through a decade from 1845 labored faithfully in the cause; who wasted a fortune but not a life, although at the last he ran a dairy route in Washington instead of a transcontinental road, and finally died before his reward came to him upon this earth.

The Whitney plan proposed to build the railroad as a private venture by Whitney himself—its finances to be expedited by a grant of land thirty miles deep on either side of the line. So much of the land was to be sold by Whitney as would pay for each ten miles of road; the remainder, if any, should remain in his possession; the advancing colonists or settlers were to be the

laborers. There were provisions by which the Government should check up on the expense, and should be favored by the traffic regulations.

Partisanship and ignorance countered upon him with the easy weapons of deprecation and ridicule. A Boston committee endeavored to prove that if he built his ten miles of road in one year, by the delay of another year to sell the lands and three more years to collect the money he would be 380 years in his occupation; and that if he actually progressed at the limit speed of ten miles every year he would be 170 years at least between start and goal.

The George Wilkes scheme, contemporaneous, vested the construction of the railroad, as a National issue, in Congress, with the United States Treasury, and not a grant of the public domain, as its fund. Nevertheless, he was impressed with the belief that, to avoid speculation in the adjacent lands, 100 acres might well be allotted to each laborer and mechanic who helped blaze the trail.

Either plan was as feasible, at this time, as that of the indefatigable Senator Benton, who presently demanded the reservation of a strip a mile wide along the whole course of the track, for a chain of army posts and, maintained at Government expense, "a plain old English road such as we have been accustomed to all our lives—a road on which the farmer in his wagon or carriage, on horse or on foot, may travel, without fear and without tax, with none to run over him or make him jump out of the way."

Nevertheless, Senator Benton, the Old Bullion of National finance, was no unreasonable visionary. For a dozen years the National Turnpike, well graded and macadamized, had extended from Washington to St. Louis, as a great thoroughfare for emigrant wagons and stage-coaches. He may rest secured by the buckler of time: when he advocated his extension of a national road across the then unknown West he was the pilot of the pleasure-car and the auto-truck.

As a matter of fact, seven years later, or in 1856, the astute Captain William Tecumseh Sherman, then a San Francisco banker, emphasized the need for such a transcontinental wagon-road under military protection, and forwarded a California petition to Congress, upon the subject.

"And," supplemented the Senator, again referring to the railroad itself, "let it be adorned with its crowning honor, the colossal statue of the great Columbus, whose design it accomplishes, hewn from the granite mass of a peak of the Rocky Mountains overlooking the road, the mountain itself the pedestal, and the statue a part of the mountain, pointing with outstretched arm to the western horizon, and saying to the flying passenger, 'There is the East! There is India!'"

In regard to the engineering bogies that hedged a route from St. Louis west almost as the bird flies, to San Francisco—no scientific figures were required!

"There is a class of topographical engineers older than the schools and more unerring than the mathe-

matics," pronounced the sturdy rule-of-thumb promoter, although Frémont himself was an engineer. "They are the wild animals—buffalo, elk, deer, antelope, bears—which traverse the forests not by compass but by an instinct that leads them always the right way to the lowest passes in the mountains, the shallowest fords in the rivers . . . and the shortest practicable lines between remote points. A buffalo road becomes a war-path . . . and finally the macadamized or rail road of the scientific man."

But the crowding events of the past span combined to minimize the once splendid vision of the *Emigrant* contributor, whose railroad should make his United States "the first nation of the world"; and of Asa Whitney, who would "civilize and Christianize mankind," and "compel Europe on the one side and Asia and Africa on the other to pass through us." They began to color the florid word-pictures of Benton, and place politics above patriotism, prejudice above prescience, spoils above principles.

The claim of the United States to the Oregon Country had been substantiated; Texas had joined the Union; California had warmed to the Stars and Stripes, and all the intervening land east to the Rocky Mountains was American soil. Without a break the Republic extended from ocean to ocean, and from the Rio Grande to the accepted 49° north.

The Mormons were cultivating once sterile Utah; a great westward inflow of population, flooding the

emigrant trails to Oregon and the California gold-fields, had astounded the wastes of deserts and mountains; and realizing full well that a people's destiny might ride triumphant upon the first overland train, the North and the South became rivals.

For the question of slave labor or of free labor, to erect edifices and till the waiting soils, weighted the national balances. The answer lay in preponderance of citizenship—the voice of the polls.

With the engaging Pierce and the cautious Buchanan in the executive chair, Jefferson Davis as secretary of war and later as senator; with Floyd of Tennessee his successor in the War Department and Brown of Tennessee as postmaster-general, and the debaters of the South not a whit inferior to those of the North, during this period from 1850 to 1860 the South more than upheld its end of the argument.

Out of singular blindness, brought on by the egotism of thirty years' national prominence, Benton thus addressed the young Charles Sumner, Massachusetts' new senator, in 1851:

"You have come upon the stage too late, sir; all our great men have passed away. Mr. Calhoun and Mr. Clay and Mr. Webster are gone. Not only have the great men passed away, but the great issues too, raised from our form of government, and of the deepest interest to its founders and their immediate descendants, have been settled also. The last of these was the National Bank, and that has been overthrown forever.

Nothing is left you, sir, but puny sectional questions and petty strifes about slavery and fugitive slave laws involving no national interests."

In defiance of the prophecy, as a burning question the route of the Pacific Railroad flamed forth to rival the heat of the Missouri Compromise. It engaged the best minds of the day—and those minds were among the best that the halls of Congress have ever fostered.

Calhoun and Webster and Benton had spoken, but Douglas, Houston, Seward, Rusk of Texas, Salmon P. Chase, Lewis Cass, Thaddeus Stevens, Curtis of Iowa, James Mason of Virginia, John Sherman of Ohio, Henry Wilson of the Massachusetts Know-Nothings, Sumner himself, and their peers in Senate and House proposed, objected, sparred and parried, in the interests of a constituency large or small. The columns of the *Congressional Globe* bristle with the magic titles " The Pacific Railroad," " Central National," " Atlantic and Pacific," a " Southern Pacific," a " Northern Pacific," and so on.

The topic obsessed public thought until Senator Butler of South Carolina compared the worship of it to the worship of the god Nile, and Senator Rusk's appellation " Colossus of Rhodes " brought the happier appellation " Colossus of Rail-Rhodes."

The United States, like the Omnia Gallia of Cæsar, was divided into three parts. A faction, voiced chiefly by Seward, favored the northern route of Whitney, running through Chicago to the Pacific coast; a faction,

with Benton as first spokesman, favored a central route, out of St. Louis, to operate across the Rocky Mountains by a pass assumed to have been discovered at the head of the Rio Grande by the errant Frémont in his ill-fated expedition of 1848, and by the expedition of 1853 transferred to the Cochetopa Pass, farther north in Colorado; a faction representing the alarmed South, championed by Houston and Rusk of Texas, Jefferson Davis, and their compatriots, through word of mouth or of pen and influence more subtle, advanced the claims of the southern route, with emphasis upon a line by way of El Paso to San Diego.

Chicago, Memphis, St. Louis, Charleston, Vicksburg, the mouth of the Ohio—these were among the eastern terminals; New York sat expectant of the large end of the cornucopia. San Francisco, Monterey, San Diego, were the western terminals, with a branch line north to the mouth of the Columbia.

But California wished only the road, and the road it was determined to have. Senators Gwin and Frémont had their instructions. The plea of 1853 to Congress rang poignant:

The distance to California by way of Cape Horn was more than the entire circumference of the globe on the latitude of San Francisco. The other carrying route, across the Isthmus, equalled the distance from Washington to Pekin. Great Britain was projecting a railroad of 1600 miles out of Halifax.

" Shall we who have beaten them [the British] in

clipper ships, swift steamers and other useful notions yield to them the palm of building the longest railroad on the American continent? Never!"

Many an aspiring traveller across from east to west spied out the proper route for the Pacific Railroad. Captain Howard Stansbury, exploring to the Salt Lake in 1849, had made official recommendations. By direction of Congress in 1853, Secretary of War Jefferson Davis had sent out those notable five columns, under the auspices of the Corps of Engineers, "to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean." They were officered by capable men, several of whom, such as Lieutenant George B. McClellan and Lieutenant John Pope, were slated to make national history.

The trial routes selected for reconnoitre were popularly known as the Northern Trail (of Whitney), the Mormon Trail, the Benton "Buffalo" Trail, the Thirty-fifth Parallel Trail, and the Southern Trail. The resultant reports fill twelve large volumes with fascinating narrative, pictures and maps, forming a classic of Government exploration.

The estimate upon the Northern route, from St. Paul to Vancouver by way of the Upper Missouri, was 1854 miles, at $117,121,000—increased by the War Department to $130,781,000. The estimate upon the Mormon route from Council Bluffs to San Francisco by way of the South Pass and Salt Lake City was 2032 miles, at $116,095,000. The estimate upon the

Buffalo (or Central) route from old Westport (Kansas City) to San Francisco by way of Frémont's Cochetopa Pass of the southern Colorado Rockies was 2080 miles, at a cost "impracticable." Thus fell from grace Senator Benton's pet scheme. The estimate upon the Thirty-fifth Parallel route, from Fort Smith of Arkansas to San Pedro (Los Angeles) by way of the present Panhandle of northern Texas, northern New Mexico and northern Arizona across to Needles at the Colorado River, was 1892 miles, at $169,210,255. The estimate upon the Southern route, from Fulton at the Red River of southwestern Arkansas to San Pedro by way of central Texas and southern Arizona, was 1618 miles, at $68,970,000.

The majority of these routes have been approximated by the lines of the Northern Pacific, the Santa Fé, the Southern Pacific, and the Union Pacific from Council Bluffs to the mountains. But although an estimate of the Asa Whitney route from Chicago and through the north, including a bridge across the Mississippi and equipment and maintenance during construction of the road, had placed the cost at only $69,226,000, the reports of the Pacific Railroad surveys were clearly a feather for the cap of the South.

The Northern Trail and the Mormon Trail were declared almost impossible by reason of the snows. The Buffalo or Central of Benton had been summarily disposed of. The cost of the Thirty-fifth Parallel Trail out of Fort Smith, a terminal that would satisfactorily

draw upon the trade of Little Rock, St. Louis, Memphis and other Southern centres, was prohibitory. The only route left, according to the recommendations of the Mississippian, Secretary Davis, was the far southern route. By climate, resources and first cost it stood forth paramount.

But the surveys soon took on the phase of twice-told stories. The Northern interests yielded not an inch; the Southern interests fervidly declaimed that if public lands were to be apportioned to a railroad, the South was entitled to equal benefits with any other section. The spectre of Free Soil or Slave Soil dominion would not down; and the character of the immigration into the new States and Territories was the crux of the long-threshed matter.

Events were shaping. Supporting California, the Utah Mormons twice petitioned Congress for railroad connection with the East. Out of Chicago the iron rails were racing for the eastern border of Iowa, and thence keen eyes were peering across westward for the Missouri River and the Great Plains beyond. Commencing its traverse of Iowa, the Mississippi and Missouri Railroad Company, parent line of the Chicago, Rock Island and Pacific, already had dispatched a young engineering chief, Grenville M. Dodge, to determine the best point at which to strike the Missouri on Iowa's western boundary, and to survey onward into the Platte Valley.

The M. and M. was bolstered in its Washington

lobby by other Chicago roads, and the Mormon route sprang again into prominence. In 1855 the first legislature of the new Territory of Nebraska memorialized Congress in behalf of a railroad by the trail of the Platte Valley. In 1856 the Frémont Republicans and the Buchanan Democrats inserted Pacific Railway planks into their National platforms—with the purpose, each, as states Colonel Alexander McClure, of winning the trans-Missouri States. The Republican plank declared for Government aid without qualifications; the Democratic plank, for the Federal aid to the extent of the constitutional power.

In 1859 a tall, homely man by the name of Abraham Lincoln seeks young Dodge, in the Pacific Hotel at Council Bluffs, Iowa, and learns all that he has learned of the plains country from the Bluffs to the Rockies.

This same year the Pike's Peak Rush founds the magic city of Denver, more isolated and unprotected than even San Francisco; and here is a new half-way station in the vista of the Pacific Railroad.

Samuel R. Curtis, of Iowa, prepares for Congress a bill that bears the name "Union Pacific."

Horace Greeley, in his old white coat and dingy white hat, tours by Leavenworth and Pike's Peak stage to the Colorado gold camps, to the Mormon capital, and on to the Coast, preaching to plains and mountains and valleys upon that salient text, the Pacific Railroad.

Denver, Gregory Gulch, Salt Lake, Placerville, Sacramento and San Francisco cheer him.

The pendulum had not definitely swung. St. Louis (Chicago's rival) and the Central route still were strong. The Pacific Railroad convention there of 1849, attended by delegates from fifteen States and Territories, had strongly petitioned Congress; the first Pacific Railroad (in due time the Missouri Pacific) had been organized, liberally subscribed, and with Government aid in lands had built 200 miles to Sedalia, its next goal Kansas City, but its mind upon California by either the northwest trail or the southwest trail; with the Southern Overland Stage line carrying the Government mail, and with the advantages of a snowless route shrieking to be heard, it is not improbable that the first of the through Pacific Railroads would have crossed the Rio Grande and the Colorado instead of the Platte and the Green had not the split in the Union seated the North firmly in the legislative saddle.

The Butterfield Overland Stage mail contract was transferred by the Government to the Platte trail, whereon the new Central Overland California and Pike's Peak stages, under Majors, Russell and Waddell, were manfully proving that the snows and the northern mountains had no terrors for the resolute.

The Union was in doubt. Rumors flew like storm-driven snow-flakes—a Western Empire threatened and the loyalty of the Pacific Coast appeared uncertain. It was imperative, now more than ever, that California should be bound indissolubly to her distant sister States. The Republican party in its platform of 1860 declared

vigorously for absolute Government aid that should insure the immediate construction of the Pacific Railway. The Douglas and Breckinridge Democratic parties were advocates reiterating for such aid as might be supplied "under the constitution." [2]

California, reading the writing of the stars, rose to her opportunity.

Theodore D. Judah, contemporary of the young engineer Dodge, had explored the Sierra Nevada Range for a railroad route out of and into California. He had addressed a railroad meeting in San Francisco, September, 1859, attended by delegates from Washington Territory, Oregon and California; the meeting had called upon Congress to note that the stages by the Oregon and California Trail had been operated regularly, summer and winter, and that California was prepared to welcome an incoming railroad at the State line with another railroad. Judah himself had appeared before Congress without results.

In June, 1861, the Central Pacific Railroad of California was incorporated. Engineer Judah and his plans were again sent forward to Washington, by the Panama route, to help the California Congressmen. Vice-President Huntington of the new company soon hastened overland by stage.

[2] In his "Recollections of Half a Century" Colonel A. K McClure states that the broad scope of the Republican avowal, as compared with the more cautious utterance of the two Democratic parties and the prevalent belief in Democratic circles as to constitutional limitations in the matter of a National railway, was what swung California and Oregon into the Republican column.

The hour had struck. From the wreak and wrack of the Free Soil contest that marked the travail of Nebraska and Kansas Territories the Pacific Railway had emerged disfigured but still in the ring. The waste-paper baskets of the Senate and House select committees were crammed with railroad bills—bills for one road, for two roads, for three roads, by private enterprise, by State enterprise, by Government enterprise; the Northern Pacific route, the People's Pacific Railroad of the Perham Construction Company of Maine, and the old-time Central route were ready topics; but the apparition of a California and an Oregon tributary to the Confederacy or to foreign invasion crystallized sentiment into hard fact.

The "Little Congress," reduced now all to Northern iron, had before it apparently more pressing questions than a National railroad until in January of the new year Sargent of California gained the floor of the House, and immediately stepped from the war discussion into the older well-beaten trail.

He won attention, and with the tireless Judah's help prepared still another railroad bill for the approval of the select committee.

"Do I understand the gentleman from California to say that he actually expects this road to be built?" challenged Lovejoy of Illinois.

"The gentleman from Illinois may understand me to predict that if this bill is passed the road will be finished within ten years," was the instant response.

The new bill, House Roll 364, was a revision of the Senator Rollins Missouri bill, which provided for several building lines from the borders of Iowa and Missouri to unite at the 102nd meridian—the Rollins bill itself being a substitute in the House for the Samuel R. Curtis (Iowa) bill. McDougall of California and the grand Harlan of Iowa adapted it to the demands of the Senate.

St. Louis as the main terminal lost out; Missouri was a doubtful State. The bill as amended passed the Senate June 20, 1862; passed the House June 24; President Lincoln signed it July 1; and after all those years, now at a troublous time, when capital would be shy and labor scarce, and the nation was suffering within its bowels the pangs of impending dissolution, in this summer of 1862 the Pacific Railroad at last was a potential entity.

The title of this "Act of 1862" reads:

"An act to aid in the construction of a railroad and telegraph line from the Missouri River to the Pacific Coast, and to secure to the Government the use of the same for postal, military and other purposes."

The bill named 158 men, more or less prominent in business and finance, appointed from Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Missouri, California, Nevada, Michigan, Iowa, Illinois, Massachusetts, Kentucky, Maine, Vermont, Oregon, Wisconsin, Indiana, Maryland, Minnesota, New Hampshire, Kansas, Nebraska and Colorado,

who together with five commissioners upon the part of the Government should be called the Board of Commissioners of the Union Pacific Railroad and Telegraph Company.

Very many of these names were of standing in National, State and business records. It is to be noted that among them were the dynamic Ben Holladay, of New York and the West, who was on the eve of making the Overland Mail stage line a striking example of tremendous organization; Jacob Blickensderfer, of Ohio, an engineer who officiated for the Government upon advance surveys; Collis P. Huntington and Engineer Judah, of the Central Pacific Company, and Charles McLaughlin, one of the construction contractors of the San Francisco and San José Railroad Company, also of California; Hartwell Carver, the original sleeping-car promoter; Louis McLane, the head of the new Wells, Fargo & Company express merger; Samuel R. Curtis, the soldier statesman from Iowa, now again in the army and wearing the laurels of Pea Ridge; William B. Ogden, Chicago's first mayor, twice a railroad president, about to be the first president of the Union Pacific, and soon the driving power behind its Missouri River connection, the Chicago and Northwestern; Henry Farnam, another Illinoisan, who with Thomas C. Durant (Union Pacific construction vice-president and chief financier) was pushing the Rock Island into Iowa; and Governor John Evans as the sole representative from Colorado. Utah was unrepresented.

Vested with all the usual powers of a corporate body, the commission and its associates were authorized "to lay out, locate, construct, furnish, maintain and enjoy a continuous railroad and telegraph, with the appurtenances," on a line that "shall commence at a point on the one hundredth meridian of longitude west from Greenwich, between the south margin of the valley of the Republican River and the north margin of the valley of the Platte River, in the territory of Nebraska, at a point to be fixed by the President of the United States, after actual surveys; thence running westerly upon the most direct, central and practicable route, through the territories of the United States, to the western boundary of the territory of Nevada, there to meet and connect with the line of the Central Pacific Railroad Company of California."

The 100th meridian as mentioned crosses the country some sixty miles west of present Kearney, Nebraska. In the original House bill the commencement of the Union Pacific had been placed at the 102nd meridian. The Leavenworth, Pawnee and Western Railroad—a Kansas company—was to build from a connection with the Missouri Pacific of St. Louis (the first "Pacific Railroad"), at the mouth of the Kansas River, to the meridian, exact point not designated. As this left matters to the St. Louis interests and to the State of Kansas, and as the Union Pacific was authorized only to build a branch line from Iowa to connect with the Kansas company at that meridian wherever made most

convenient by the L., P. and W., obviously St. Louis was to be the main eastern terminal.

The Senate amendments devised by Harlan effectually changed the aspect. The point of juncture was placed in the Territory of Nebraska (thus avoiding any conflict with States' rights) and moved 120 miles toward the Mississippi. The Leavenworth, Pawnee and Western was authorized to extend to connection there; so was the Hannibal and St. Joseph, from St. Joseph or Atchison on the Missouri north of the mouth of the Kansas; a branch to tap the northeast through Sioux City of Iowa was to be built, and the Union Pacific Company was also to extend from the 100th meridian eastward some 250 miles to a point on the western border of Iowa, as designated by the President.

As these would be Union Pacific tracks, and without doubt would connect with one or more of the Chicago roads already building across Iowa, they would be the main line. The L., P. and W., a State corporation, had 380 miles to build; therefore, as previously said, St. Louis had lost out.

The Leavenworth, Pawnee and Western never did connect with the Union Pacific at the 100th meridian. By act of Congress in 1866 it was permitted to diverge; and as the Kansas Pacific (the Union Pacific, Eastern Division) it battled heroic way by the old Smoky Hill stage route through the opposing Indians of northern Kansas and entered Denver direct.

The Hannibal and St. Joseph, organized as far back as 1847, became a part of the great Burlington system.

The Sioux City and Pacific branch was built, under its own charter, to Frémont, Nebraska.

The roads as named, and the Central Pacific Company of California should be entitled to right of way, through public land, of 200 feet width on either side of their tracks, and the privilege of taking earth, stone, timber and other material from the public lands adjacent—the United States pledging itself to extinguish the Indian titles along the route. This provision was rather necessary, inasmuch as here and below we have a Government contracting to deliver land that it did not actually possess.

As a subsidy there was granted vacant lands within ten miles on either side of the lines for five alternate sections per mile—mineral lands alone excepted.

As further financial aid the Government would lend $1000 6 per cent. thirty-year bonds as follows: On 150 miles of mountain construction, $48,000 per mile; on construction to the base of the mountains, $16,000 per mile; on the construction through the basin between the Rockies and the Sierra, $32,000 per mile. The whole amount of the loan should not exceed $50,000,000.

But the grants and bonds should apply to the Hannibal and St. Joseph upon only 100 miles west of the Missouri River—this as a check should that company unite with the L., P. and W.

The Central Pacific Company of California was to build east from the Pacific coast at or near San Fran-

cisco to the eastern boundary of California, and there meet and join the Union Pacific and form one continuous line with it.

"The track upon the entire line of railroad and branches shall be of uniform width, to be determined by the President of the United States, so that, when completed, cars can be run from the Missouri River to the Pacific coast; the grades and curves shall not exceed the maximum grades and curves of the Baltimore and Ohio Railroad [*i.e.*, 116 feet to the mile and radius of 400 feet to the mile]; the whole line of said railroad and branches and telegraph shall be operated . . . as one connected continuous line."

If the Union Pacific should reach the California boundary before the Central Pacific, it might continue on, with the consent of that State, to another meeting point. Conversely, the Central Company, if arrived first, might continue on. And both the Central and the L., P. and W., having completed their lines, might unite with the Union Pacific to build that road across the space of country yet unoccupied by it.

The L., P. and W. was required to complete 100 miles of road westward from the mouth of the Kansas River within two years after formal acceptance of the provisions of the act, and then at the rate of 100 miles a year to its western terminal. The Central Company was required to complete fifty miles of road within the first two years after assent to the act, and fifty miles each year following. The Union Pacific Company was

required to complete 100 miles of road and telegraph west from the border of Iowa within the first two years, and 100 miles a year thereafter.

The connection at the Nevada-California boundary should be made within twelve years, or before the first day of July, 1874; and there must be "a continuous line of railroad, ready for use, from the Missouri River to the navigable waters of the Sacramento River, in California, by the first day of July, eighteen hundred and seventy-six."

The rails and other iron must be of the best American manufacture only.

Two Government directors should sit with the final board. Three Government commissioners should inspect each forty miles of road and telegraph line as completed; and upon their approval of the work and equipment the bonds and the land patents pertaining to these forty miles should be issued. The delivery of the bonds constituted a first mortgage upon the whole line of railroad and telegraph, to insure payment of principal and interest advanced by the United States.

Government dispatches, troops, mails, munitions and so forth were to be forwarded at fair rates not in excess of rates charged to private parties; and the compensation as agreed should be credited by the Government upon the payment of the companies' indebtedness to it.

Permission was given to utilize, if desired, the already existing telegraph line across the continent.

There were other provisions, including, of course, penalties for non-completion according to specifications and for defaults in payments of principal and interest; but the foregoing are the striking features of the portentous Act of 1862.

The act had passed the Senate by a vote of 25 to 5; had passed the House by a vote of 104 to 21. However, the lavish subsidies, of $50,000,000 in bonds and of public lands aggregating 11,000,000 acres for the main Union Pacific and Central Pacific (amount doubled by an amendment of 1864), startled the old-school cautious people as a dangerous precedent.

Above the alarmist protests the voice of the great Free Soiler, Senator Henry Wilson, Sumner's colleague from Massachusetts, and in after day to be Grant's vice-president, reëchoed clearly:

"I give no grudging vote in giving away either money or land. I would sink $100,000,000 to build the road, and do it most cheerfully, and think I had done a great thing for my country. What are $75,000,000 or $100,000,000 in opening a railroad across the central regions of this Continent, that shall connect the people of the Atlantic and Pacific, and bind us together? Nothing. As to the lands, I don't begrudge them."

While in contrast General William Tecumseh Sherman, wet-blanketing his brother from Ohio but eventually one of the strongest supporters of the vast enterprise, goes on alleged record:

"A railroad to the Pacific? I would hate to buy a ticket on it for my grandchildren!"

It was 19,000 miles around the Horn. In 1862 by the improved Panama route New York and San Francisco were separated four and five weeks. By the Concords on the Overland Stage line the time between the Missouri River and California was seventeen days. Between end of railroad, at St. Joseph, and Placerville of California the galloping Pony Express had been carrying tissue-paper mail, for $1 the half-ounce, in eight days—a marvel of achievement until the Overland Telegraph of the budding Western Union had stabled the last relay.

And it still was seventeen days—112 miles in every twenty-four hours—for mail and citizens. As to moving troops and government supplies, the march of the Mounted Rifle regiment from Fort Leavenworth to Oregon in 1849 had consumed five months; the Colonel Albert Sidney Johnston's "Army of Utah" had been over three months marching from Leavenworth to Fort Bridger of the Rockies in the summer and fall of 1857.

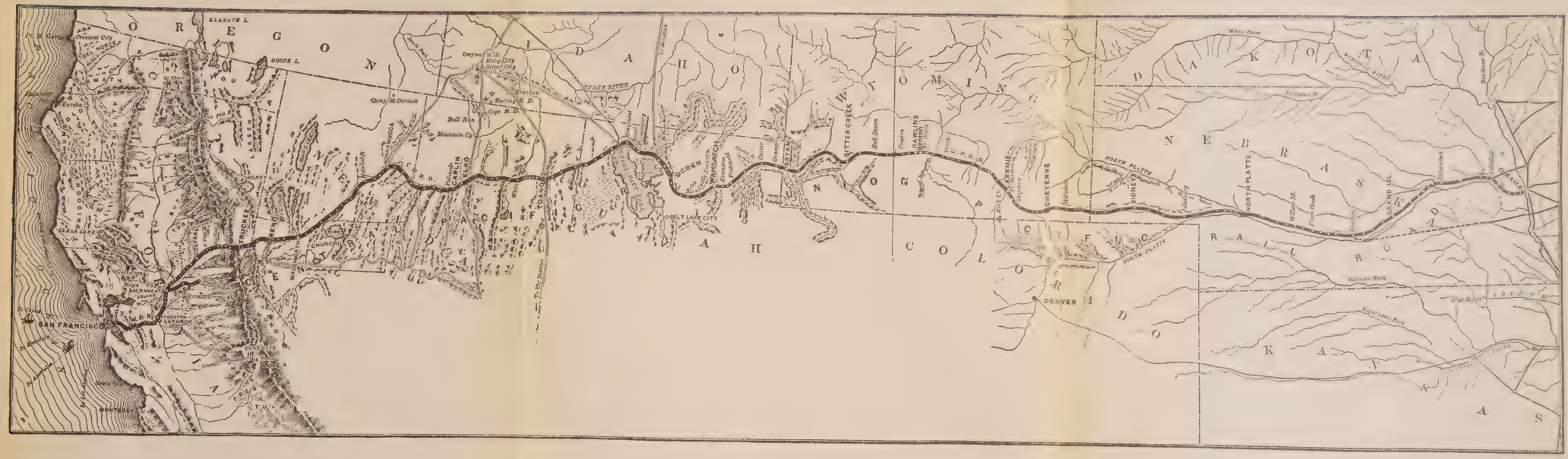
The exigencies of a war threatening the Pacific country would crowd the Panama route; and the hazards of war would render the long trip down the Atlantic, across the Isthmus, and up the Pacific an undertaking trebly fraught with menace.

Now war had come from an awkward quarter—a quarter that closed the exit of transports from New

Orleans, and imperiled the high seas to the Isthmus. The Trent affair, by which England was almost alienated, and the disaffection in California which seemed to incline her toward the Confederacy or a Pacific Republic, sharpened the call for quick and secure interior communication between East and Farthest West.

A Pacific Railroad therefore was a military measure as well as a measure for domestic improvement; and while it never developed into a Rebellion measure, and its actual military province was that of subduing the Indians, its prospective course through loyal territory appeared to be an asset.

The Central Pacific Railroad Company of California had been well organized and was straining at the leash. The new Union Pacific Company, more diffuse in its personnel and interests, needs must mark time for a spell. Consequently the operations of the Central come first.



THE PACIFIC RAILWAY
As Completed May 10, 1869

II

Central Pacific Men and Methods

By its marriage with the Southern Pacific, the Central Pacific somewhat lost its identity as a pioneer across continent. The S. P. locomotives and cars have long been the occupants of the C. P. tracks on the main line between San Francisco Bay and the Great Salt Lake. Few passengers, of all the annual host switched so easily over the long grades and the high bridges of the Sierra and sped thundering through snowsheds and tunnels, think "Central Pacific."

On the contrary, the Union Pacific, which formed the link from the Missouri to the Salt Lake, has retained the prestige of its building name.

Not only was the Central Pacific the first to leave its take-off, separated from the opposing take-off by 1770 miles, but the stamina that fed its youth was the dynamic force of five men: Leland Stanford, Collis Potter Huntington, Charles Crocker, Mark Hopkins, and Theodore D. Judah, all of Sacramento.

They were young, that is to say, verging upon the time of life when man's mental and physical energies should be at their best combination.

Leland Stanford, a delegate to the Lincoln convention in Chicago, and who at the organization of the Central Pacific Company had been ten days nominated for first Republican governor of California, was thirty-

seven. He had been born a farmer's boy, near Albany, N. Y.; was by early profession a lawyer, had moved from Wisconsin to California in 1852, and for a period of half a dozen years before his elevation to the executive chair of the State had been a member of the mercantile firm of Stanford Brothers, Sacramento, dealers in groceries and provisions.

Railroad work had interested him since boyhood. His father, Josiah Stanford, had been engaged upon the second of the all-steam railroads in the United States, the first to use the truck-wheeled locomotive and the first to experiment with a coal-burner. This was the Mohawk and Hudson, later the Albany and Schenectady, of the present New York Central, whose line in 1831 ran past the Stanford farm.

It is a curious coincidence that upon this line, at the time its engine the little "John Bull" attracted the attention of the urchin Leland Stanford, destined to be president of the Central Pacific, there was employed the stripling Sidney Dillon, destined to be, in a same year, the president of the Union Pacific; and that, during the construction period of the Pacific Railway they two, one buoying the C. P., the other buoying the U. P., approached each other across continent until they met at Promontory Point, Utah.

Leland Stanford, California's war governor for two years, was a man of hearty, ruddy aspect, of massy brow and high principles, of immaculate garb and suave but forceful presence. His name endures not only as

that of a great citizen, but likewise in Leland Stanford, Jr., University, founded by him as a memorial to his son. Long before his death in 1893 he had acquired a large fortune.

Collis Potter Huntington, in 1862 aged forty-one, had been born a Connecticut Yankee, was a Forty-niner by the Panama route, from Oneonta, N. Y., to California, and at the launching of the Central Pacific was senior member of the firm of Huntington and Hopkins, hardware and miners' supplies, Sacramento. At his death in 1900 he had outlived his three colleagues. His name is synonymous with the Southern Pacific Railroad system, of which he became president. Through his nephews the same name is attached to other immense enterprises, in Southern California, and also in the East.

Gifted in mind, frame and features, he early proved himself as a man of most tenacious purpose, and as a consummate manipulator of affairs when dealing with fellow-men. Activity characterized his whole course; but—"I do not work hard. I work easy," was his significant phrase.

Mark Hopkins, his partner, and his associate in the Central Pacific, aged forty-nine, of New York State birth, had been an Argonaut by land from Michigan to San Francisco. He had studied law as a business training, and in Sacramento was known as a very conservative but sound business man.

As compared with Mr. Huntington he was of

darker complexion, slighter physique, and of less pronounced but scarcely less efficient methods. He and Huntington were partners in the mercantile trade for twenty years. "One of the truest and best men that ever lived," is the encomium upon him. "If Mark Hopkins had told me that he had sold my dwelling house, and if he sent me the deed of sale, I would have signed it without reading it," Mr. Huntington testified. His conservatism made him the dependable member to whom was referred the final decision upon debated matters. "I never thought anything finished until Hopkins looked at it," asserted Huntington the lion.

Charles Crocker was forty years of age; his birthplace Troy, N. Y. He came from a hard-pushed family; had been a wage-earner since early boyhood. His profession was that of a forge man until, after arriving in California in 1850 and trying the mines, he opened the leading dry-goods store in Sacramento. In 1860 he had been elected to the State legislature on the Republican ticket.

His forte was intense activity, both physical and mental. "Loved work for work's sake," states Bancroft, California historian; could "drive" men in gangs—was a natural as well as a trained executive in the actual field; and according to his own words was "always trying to make a dollar buy a dollar and five cents' worth." He was stoutly built, heavy-featured, firm-lipped, with the blue eye of a fighter. His death occurred at Monterey, California, in 1888.

Theodore D. Judah had been born at Bridgeport, Connecticut, and was thirty-five. Graduation from the Troy Polytechnic had started him upon a brilliant engineering career which terminated in his death in 1863. Thus he was deprived of the laurels that, more to him than material wealth, the future seemed to hold in store.

Stanford, Huntington, Crocker and Hopkins formed the famous Big Four of California railroad enterprise through fifteen years—a unity broken by the death of Hopkins in 1878.

Judah called a public meeting of Sacramento citizens to discuss his railroad project. Merchant Huntington counseled him, aside, that such means might answer for a Fourth of July celebration, but were inadequate for a scheme of this magnitude—the conquest of the Sierra; invited him to come into his store and talk it over.

After several meetings at the store of Huntington and Hopkins, the Central Pacific Railroad Company of California, capitalized at 85,000 shares, par value $100, was organized on June 28, 1861, and incorporated under the laws of the State. Its name evidently sprang from the "Central" Overland stage route. A "Central Route" needed little advertising, for it had been much before the people.

Leland Stanford, the Republican candidate for governor, was chosen president—a position that he held for thirty years, combining it with the presidency of the Southern Pacific Railroad also. Mr. Huntington

was chosen vice-president; and his tenure of office likewise was long, connected with his presidency at an early date of the Southern Pacific, parent company of the present S. P. coast and gulf system.

Mark Hopkins was chosen treasurer; James Bailey, a Sacramento jeweller and patron of Judah, secretary.

Among the directors was Edwin B. Crocker, brother of Charles Crocker, and soon to be the company's attorney. The principal stockholders subscribed to the extent of 150 shares each.

Theodore Judah was, of course, the chief engineer. He had been imported from the East in 1854 as engineer for the Sacramento Valley Railroad—the first of the California iron roads, which succeeded in building from Sacramento east to Folsom, 22 miles, at a cost of $60,000 a mile. He was an enthusiast upon the subject of a road over the Sierra Nevada range, and his lore gained from some twenty surveys of that snowy divide fascinated his audience.

The Central was fortunate to get him. He knew the California mountains thoroughly; he knew Washington, also, and its legislative methods—had already been there several times in the interests of California railroad schemes which would secure land grants from the Government. He was of engaging personality, and of utter, even boyish honesty. Following his trip to Washington, after the railroad convention of 1859 at San Francisco, he had submitted a charge of only $40, for printing, out of a total expense of $2500.

A cash fund of $35,000, supplied by the few initial stockholders, kept Judah in the field for the Central until fall. On date of October 1 he made his final report upon routes.

The "Dutch Flat" route, the continuation of the popular emigrant and Forty-niner trail from the Platte and the Salt Lake, up the Truckee and in by way of Donner Pass over the Sierra, was his recommendation.

This demanded an ascent of 7000 feet in not more than seventy miles. But he had found a long unbroken spur extending from Donner down along the north side of the American River into the Sacramento Valley. Its maximum grade would not exceed 105 feet to the mile; there were no mountain rivers nor canyons to cross, except a small tributary of the Bear River a short distance above Dutch Flat.

The eastern slope might be descended by two convenient ravines on the south side of the tragic Donner Lake—tragic by reason of the Donner party catastrophe amidst the snows of 1846-1847. Truckee River on the other side might be reached, at eleven miles from the summit, by grades not greater than those of the west slope. The passage of the Truckee through the eastern summit ridge or secondary ridge of the Sierra offered a practicable exit by a 40 per cent. grade to the Truckee Meadows and the Big Bend in the Desert of the Humboldt, Nevada.

The distance from Sacramento to the Truckee was only 123 miles; to the State line, only 140 or 145 miles.

His report estimated eighteen tunnels, most of them over 1000 feet long but none over 1400 feet long, and all in granite rock, that called for little timbering. He foresaw no snow trouble. The route was chiefly "side hill line," on the flanks of slopes where snow slid off or might be removed. By the testimony of the moss-line on the trees, and of mountaineers, the greatest depth of undrifted snow on the summit was about thirteen feet; but if snow-plows were set at work after each storm the road could be kept open all winter. The snow in any quantity was confined to a stretch of about fifty-five miles—from Dutch Flat, forty miles west from the summit, to a point less than half that distance east from the summit.

His cost estimate, from Sacramento to the eastern boundary of the State, 140 miles, summed up about $12,500,000, or a little over $89,000 a mile. Construction near the summit would run to $150,000 a mile, whereas the initial construction out of Sacramento would call for only about $50,000 a mile.

This Dutch Flat or Donner Lake route was approved. President Stanford rehearsed that when he and the other members of the official examining party stood at the proposed pass here; looked at the lake, 1200 feet below, and at the cliffs, still 2000 feet above; realizing as they did that their railroad would have to make an elevation of 7000 feet in 103 miles, they agreed that could a steamship around Cape Horn either from San Francisco or New York "get in back there" with

its goods, they could not build the road and meet with the competition.

But the feat being impossible, and the only competition being that by ox-team and mule-team, "as the laws of the State of California allowed 15 cents a ton per mile, we concluded we would build it." With his maps and estimates Judah, accompanied by Secretary Bailey, his long-time acquaintance, officially proceeded to Washington, earning there the success such as has been narrated in the foregoing chapter.

He filed his company map with the Secretary of the Interior, that the public lands as designated might be withdrawn from entry; and on July 21 took the steamer for his long voyage home again, bearing with him a testimonial from Congress thanking him for his National service. Theodore Judah, now vaguely remembered, was the tutelary genius of the Pacific Railway.

In his report of October to the company he urged the extension of the surveys as far as Salt Lake, and advised undertaking at least 300 miles of road beyond the California boundary.

When he directed attention to the probable financial benefits that but awaited the extension, he broke no news to Messrs. Stanford, Huntington, *et al.* The prime inducement for building through on a line as short and direct as feasible lay in the shining prize offered by the Nevada silver mines. The fabulous Comstock vein had been uncovered, Virginia City had been baptized with a bottle of whisky, the Washoe excitement (im-

mortalized by the ubiquitous Ross Browne, assayer and peripatetic journalist whose sketches rival those of "Roughing It") had scarcely simmered down; the Nevada "Silverado" was eclipsing the California El Dorado, and the California stage lines, the Wells-Fargo Express, and an army of freighters were doing a plethoric business between Placerville on the Sacramento Valley side and Virginia on the Nevada side. To shunt this business, or part of it, into Sacramento by rail promised a revenue for the Central of $5,000,000 a year in the midst of its building program.

The Central's acceptance of the Act of 1862 was filed with the Interior Department on December 1, this year. On December 27 the provisional construction firm of C. Crocker & Co. was granted the contract for the grading, masonry, bridges and track of eighteen miles of road out from Sacramento. Crocker divided the distance into eighteen sections and sublet them.

"Breaking of ground" took place at Sacramento January 8, 1863, a year almost to a day after the inauguration of Governor Stanford. Now as president and governor he wielded the first spade on the Pacific Railway, when before State and local officials and a throng of other spectators, at K Street, the levee terminus, he ladled some earth from a dump-cart into a mud-hole that marked end o' track in the West. There were cheers and speeches.

The company early had decided that President Stanford should attend to State legislation in support of

the road; that Vice-President Huntington should be the financial agent in the East and look out for additional National legislation; and that Charles Crocker and Treasurer Mark Hopkins should manage the business end. The assignments could not have been improved.

Forty miles of track, including some difficult and expensive work amidst the foothills, must be completed before the company might draw upon the Government bond and land subsidies. The members had not entered upon this thing through philanthropic or wholly patriotic motives. It had an element of romance, but not the luster attached by the Congressional debates to the more widely appealing Union Pacific.

The members were hard-headed business men, inured to making their own way. In California they had seen many a golden dream shattered, and many a large stake won through sheer daring. The alert and resourceful there gained; the sluggard lost.

It is said that they were poor, in comparison with their wealthy peers and in the light of their great undertaking. Possibly so. It is said that they were well-to-do, were their assets rightly computed. Again, possibly so.

They all were in "going" and long-established enterprises which did not conflict the one with another. By testimony of Huntington before the investigating commissions of Congress, Crocker's dry-goods house was very prosperous. Crocker said that he himself was worth over $200,000. The Stanford brothers

(groceries and provisions) were worth "several millions." The Huntington firm had been capitalized in 1855 with $400,000; he swore that when alone in the hardware and metal trade, in eight months of 1854 he had cleared $854,000. In 1861 the firm had credit standing of a million. Sacramento was a thriving centre, second only to San Francisco.

Opposing this statement, there should be set the memorial to Congress at the time when the company was organized, to the effect that the Stanford brothers were worth $33,000; Huntington, $7000; Hopkins, $9700; Huntington and Hopkins, $34,000; Charles Crocker, $25,000.

A San Francisco petition to Congress rated the company, in its beginnings, at less than $250,000.

There was method in all these statements. A medium might be struck.

Engineer Judah estimated the prospective cost of the first fifty miles at $3,250,000, or an average of $65,000 per mile, exclusive of rolling stock. By the laws of California, embodied in the charter, ten shares, or $1000, a mile must be subscribed on the line across the State, figured at 138 miles, before the road might be commenced. Of this amount, 10 per cent., or $10 a share, must be paid down; assessments should be made at $5 a share during the course of construction.

The initial sale of the capital shares in California was meagre, but sufficient to meet the law—1580 out of the total 85,000 being subscribed for by the company

officers and a few friends. War conditions were rendering money dear and investors cautious. San Francisco citizens rewarded an all-day session with open subscription books by taking one block of ten shares!

The company had no notion of advancing from its members' private funds until absolutely necessitated. Available on paper there was at most only $158,000; a portion of it, $125,000, in the treasury, and the entire amount merely a bagatelle in building a railroad. David O. Mills, already a wealthy man and soon to help found the great Bank of California, declined to ally himself; so did other San Franciscans who commanded large capital. Huntington applied to his Eastern acquaintances, of whom he had a flattering number in financial circles. It was better to borrow, if needs be, there than in California at 2 per cent. a month.

Henceforth he spent the major portion of his time in the East; a month at New York, then ten days in California, then back again; to and fro, to and fro, by stage, and eventually by stage and rail together, 6000 miles of toilsome round trip.

He knew men such as Moses Taylor, William E. Dodge, William R. Garrison and father, the wealthy philanthropist, steamship magnate, and one-time San Francisco's mayor practically by acclamation, Commodore C. K. Garrison. But they and other commercial leaders in New York and Boston refused to take a substantial interest, even in the company bonds, alleging that the risk was high, the profits remote; until—

"Huntington, we do not want to go into it; but if you will guarantee the interest on these bonds for ten years we will take them."

And Huntington replied, in his abrupt way:

"I will guarantee them, because if the Central Pacific ever stops short of completion C. P. Huntington will be so badly broken that you will never spend any time picking him up."

At the outset, by pledging the credit of himself and his associates to the amount of $250,000 he was enabled to contract for the delivery, upon schedule time, of the iron and other equipment for building and operating fifty miles of road. Eventually he gained the day for the company's Government bonds by enlisting the young brokers and bankers, Fisk and Hatch, who specialized in such securities. They acted as the Central Pacific's financial agents in the East, took paper and returned gold—and when they failed in 1874 owed the company over $830,000. But their vigorous backing as the godfathers of the company in its childhood more than offset their defection in its manhood.

There came a time when Vice-President Huntington and the other company individuals were upon promissory paper to the extent of $1,250,000. However, the case first in evidence, when he obtained the wished-for material from Eastern manufacturers, is a salient example of the value of business integrity.

In July, 1863, Engineer Judah was pleased to report that 6000 tons, or sixty miles, of rails had been pur-

chased, to be delivered 500 tons a month, including also the spikes and chairs (fish-plate fastenings were adopted afterward) for the sixty miles. There had been engaged six locomotives, six first-class passenger cars, two baggage cars, twenty-five flat cars, fifteen box-cars, and frogs, switches, turntables and other appliances for the fifty miles.

At this time the bridge across the American River was almost completed. The greater portion of the eighteen miles had been graded and was waiting for the rails.

In October Judah started for the East, to reinforce Huntington. He died from a fever upon his arrival in New York. Samuel S. Montague, his assistant, succeeded him as chief engineer, with George E. Gray as consulting engineer, and the work was done well.

Although the Central was a California enterprise, the fact early became apparent that little moral help could be expected from the California people. The sectional and personal fight in opposition to the road duplicated, on a smaller scale, the opposition that retarded the Pacific Railroad projects through the Fifties.

Almost at once the San Francisco press, subsidized by business interests jealous of Sacramento, and by other interests with their own irons already in the fire, tried hard to kill it by adverse comment.

The Wells-Fargo Express Company, now under its able president, Louis McLane, waxing to be a power in California and Nevada, and controlling the main

traffic between, foresaw serious competition in carrying; and although President McLane was upon the board of commissioners appointed for the Union Pacific Railroad he felt bound to serve his company.

The California Stage Company and enlisted transport lines, that rendered Sacramento one of the busiest stage centres in the world and formed the connections with the Nevada silver mines and the Overland business out of Salt Lake, viewed the Central as a distinctly dangerous rival. The Pioneer Stage road between Virginia City and Placerville was a lucrative toll road, bringing its owners $693,000 in 1862.

The Overland Stage across country from the Missouri to California saw itself doomed by the Pacific Railway agitation; and although Ben Holladay had subscribed for twenty shares of Union Pacific stock—a tentative investment of $20,000—he would have been willing to lose the full amount if that might have halted the march of events which threatened his Government contract of $1,800,000 a year.

The great Pacific Mail Steamship Company, which cared for the Isthmus traffic, and the California Steam Navigation Company, that plied on San Francisco Bay and the Sacramento River, of course joined the ranks of the opposition: the one combating the transcontinental short-cut, the other fearing the entry of the rails into San Francisco.

The Overland Telegraph, whose Pacific companies had perfected their service between Placerville and

Salt Lake City, could not be counted upon as welcoming those wires upon which Government and commercial messages would be sent.

A host of freight contractors, large and small, and their more than 10,000 employes in plains, mountains and deserts, bristled belligerent. The Sitka Ice Company, supplying ice to consumers at five cents a pound, tossed a monopolistic hat into the ring.

The "Dutch Flat and Donner Lake route" was given a bad name. Out of a doubt real or pretended that the company ever would be able to finance a road across the Sierra, the project was dubbed the "Dutch Flat Swindle."

Even the personal friends of the company wavered at the constantly impinging assertion "the road will end high in the air and nowhere else." Huntington, Stanford—they all were earnestly warned, "You will bury your whole fortune in the snow of the Sierra." Vice-President Huntington testified before Congress that the mercantile credit of himself and his colleagues was seriously impaired by their connection with the so-called crazy venture.

Outside of San Francisco the bitterest fight was waged by Placerville and its allies. From a decadent mining camp Placerville had grown to be a prosperous, bustling mart upon the Nevada-California highway for the rumbling six-horse Concords, the long pack-trains, the toiling foot-travelers, and all that steady traffic between mines and market—a traffic that in 1863

amounted to $13,000,000. The Dutch Flat route of the Central left Placerville at one side; and by bidding for the traffic would relegate the old town back to the "has-beens."

Nevada tilted a lance or two. Its legislature, to hurry matters, hung up a prize of $3,000,000 in bonds for the first railroad that should connect the Territory with the navigable waters of California.

President Stanford hastened over and pleaded that the donation should be made to the Central. The clause was finally killed; but soon thereafter, when the Central had completed only thirty miles, Nevada again interfered, in favor of the new San Francisco and Washoe, whose track, now thirty-eight miles in length, was to pass from the Sacramento's head of navigation through Placerville and onward to present Reno.

The first legislature of the new State of Nevada memorialized Congress to grant $10,000,000 in bonds to the initial railroad from the Sacramento to the eastern base of the Sierra; and appointed a senate committee to get reports upon the prospects of the various companies in the field.

The engineer of the opposition to the Central promptly belabored that company with an astonishing array of allegations—to the extent that out of his own surveys he knew the projected route to be impossible; that Judah had known this, had resigned in consequence, and accepted $100,000 first mortgage bonds to keep silence; that the company dared not make public

its location line to the summit—that it had no intention of entering Nevada and would stop when it had diverted traffic by a cut-off wagon road to the mines.

The report was so extravagant that it defeated itself. Nevada became too busy to pay further attention to the imbroglio. Congress declined to place eggs in still another basket. The C. P. was building on, now with ample resources; and although launched with a chorus of acclaim and promises, the San Francisco and Washoe fell by the way.

Despite the hue and cry of fraud, under Republican auspices and the exigencies of the war California State legislation had been satisfactorily engineered. By acts of 1863 and 1864 the State and various counties were authorized to exchange bonds for company stock to the sum, all told, of $1,650,000, much of it payable at once; the company was authorized to issue bonds in $12,000,000 at 7 per cent., secured by mortgage, the interest on the first $1,500,000 to be borne by the State treasury.

The San Francisco city and county subscription of $600,000 was held up for several years, and finally was discounted only after much litigation; for San Francisco seemed to be implacable. But the remainder of the local subsidies was delivered.

June 1, 1863, the company books showed total stock subscriptions of 7115 shares, with $210,930 paid in. The vast majority of the stockholders were of Sacramento; San Francisco had doled out two subscriptions;

but all were of California, and the first thirty miles of the Central Pacific were built with California money stretched out by the personal efforts of Vice-President Huntington in the East. Stanford testified that for one period of seventeen days there was not a cent in the treasury.

The light ahead rapidly broadened into day. Fortune certainly favored the bold. At the outset there had been a vexation—an added straw—when Congress changed the gauge of track in defiance of President Lincoln's decision. Upon the harassed, busy Lincoln the Act of 1862 had imposed this question of gauge to be uniform from river to ocean. Lines already established were using gauges ranging from seven feet down to the four feet eight and one-half inches which was being adopted as "standard" gauge by the New York Central, the Michigan Central, Baltimore and Ohio, the Chicago and Northwestern and the Rock Island.

The California railroad charters required the gauge of five feet. At a cabinet meeting during the week preceding January 24, 1863, the gauge of the Pacific Railroad was discussed with Vice-President Huntington and other alert Californians. The cabinet itself, says the Secretary of the Navy, Gideon Welles, was almost unanimous in favor of the standard gauge—arguing that to reduce width of track was less expensive than to increase it; but swayed by perhaps the California necessities as represented to him, at any rate informed that a large amount of material had already

been ordered for the five-foot gauge, the President obligingly issued his dictum: five feet.

Whereupon, moved in turn by protests of the Eastern interests, and particularly of those roads then building toward the Missouri for connection with the transcontinental line, in resolution of February and March the Senate and House declared; "That the gauge of the Pacific Railroad and its branches throughout the whole extent, from the Pacific coast to the Missouri River, shall be, and herein is, established at four feet eight and one-half inches."

This was the first defeat for the Californians, but it was amply made up to them in succeeding legislation.

Aided by the Union Pacific force of lobbyists, Vice-President Huntington of the Central and his lieutenants were working, as they well knew how to work, for a betterment of the Act of 1862.

There were good arguments: That the first mortgage lien by the Government barred other investors and militated against the company bonds; that the Government currency bonds, in war time, needs must be sold at 10 per cent. discount; that the intrinsic worth of the California lands was greater on paper than in the reality; that none of the lands had value until the tracks were in and the country opened; that the price of labor and material had soared; that gold, the standard on the coast, was at a premium of 30 and 40 per cent., and that currency and securities had depreciated; that the Union Pacific had not turned an inch of earth, and

would rather forfeit its charter than plunge ahead into financial disaster. And there was the specious argument that unless the Pacific Railroad was pushed, California might be lost to the Flag.

The pages of the *Congressional Globe* tell vivid stories of this fight, waged day and night, by the railroad lobbyists and their host of crumb-seeking hangers-on, in the corridors and upon the floors of Congress. The majority claimed in print that the final bill was not the bill as recommended by the Senate and House committees, but was a cleverly palmed substitute, rushed to adoption without a reading, without a teller to appraise the ayes and noes, and thus foisted, like a changeling, upon the people.

Nevertheless, subsequent testimony would show that in approving the munificence of the new act the National law-makers and the President were carried along upon the crest of an honest desire to provide for the Pacific Railway, at the outset, a " strong corporation " that should " be able to withstand the loss of business and other casualties incident to war and still to perform for the Government such reasonable service as might under such circumstances be demanded."

" It was the purpose of Congress in all this to provide for something more than a mere gift of so much land, and a loan of so many bonds on the one side, and the construction and equipment of so many miles of railroad and telegraph on the other."

The young giant was to be started out insured

against failure; and there were those who affirmed that if the Government never got back a cent from its advancement in bonds and lands, like a good father it should gaze proudly upon its living investment.

The Act of 1864, passed by both Houses in June and signed by President Lincoln on July 2, became a fact. Perhaps it was upon this occasion that the Huntington succinct dispatch flashed across the continent:

"We have drawn the elephant; now let us see if we can harness him."

By this act, amending the Act of 1862, the land grants were increased to ten sections per mile, within twenty miles on either side of the tracks—doubling the area to 12,800 acres a mile.

Vastly more important to the roads, however, was a new provision that authorized the companies to issue their own bonds in amounts equal to the Government bonds (both to be released on the completion of twenty instead of forty miles of road); and these bonds should be secured by first liens upon the roads, thereby submerging the Government bonds into second mortgages.

Of only less importance was the provision that authorized the issuance of the Government $32,000 and $48,000 bonds in amounts of two-thirds the total when any twenty miles of road between the eastern base of the Rocky Mountains and the western base of the Sierra Nevada had been prepared for the track. The remaining one-third should be paid upon approval of the completed twenty miles. But this advance should

not apply to the Union Pacific west of Salt Lake on more than 300 miles beyond the fully completed continuous track.

The time limit in which the first stretches must be completed was extended one year. The Central was required to build only 25 miles a year thereafter, and was given four years in which to reach the State border.

Right of way was reduced from 200 to 100 feet on either side of the tracks, but private property might be condemned for the purpose. Coal and iron might be taken from land otherwise exempted as mineral lands. Transportation and telegraph service for the Government should be paid for one-half in cash, one-half by credit upon the bond loan.

The two companies might unite in all road building; the failure of one company to meet the conditions should not invalidate the other; the Central Pacific might build 150 miles east of the California border in order to meet the Union Pacific.

Three Government inspecting commissioners should be appointed for each road, and five Government directors should serve upon the Union Pacific board—"visit all portions of the line," sit in the meetings, and from time to time report to the Secretary of the Interior.

The Union Pacific capital stock was placed at 1,000,000 shares of $100 each, instead of 100,000 of $1000 each; the books should be kept open until all the stock had been subscribed.

It was an extraordinarily generous act. Under its

patronage the two companies might move onward content—and particularly the Central, to whom the only obnoxious provision was that limiting its extra growth to the 150 miles. But as for this—

"I said to Mr. Union Pacific, when I saw it, I would take that out as soon as I wanted it out," Mr. Huntington affirmed.

So he did, in 1866—"without," he said, "the use of one dollar."

When the Act of 1864 arrived like a legacy, the Central had built only to Newcastle, thirty-one miles; the eighteen months since the letting of the first construction contract had been a struggle of nerve against time; but now the company, working in great harmony and with infinite skill, saw the open way through the physical obstacles that loomed before.

It had a land grant of 12,800 acres per mile. It had a creation of marketable bonds in sums of $96,000, $64,000 and $32,000 per mile, besides the State and county subsidies. Public sentiment, which, nowhere more strongly than in California, desired the Pacific Railroad, swung to it when its success was assured.

From the moment that the scrawl of Abraham Lincoln made the Act of 1864 a law the Central's future was assured. Picks and spades of the grading crews upturned golden soil, and the company found itself confronted with the pleasing question "how to dispose of the vast sums beginning to flow in on every side."

Again aid came from President Lincoln, who sought

to favor the Central no more than the Union, but who was amenable to every project that promoted the course of the Pacific Railroad.

In this is seen the fine Italian hand of Congressman Aaron Sargent, who as a good angel had accompanied Theodore Judah around the Isthmus in 1861, and who served long in State and Government duties.

By decision of the California Supreme Court the Sierra western foothills terminated thirty-one miles from Sacramento; but with a bonus of $96,000 a mile for 150 miles of mountain work, the Central Company naturally was anxious for the first foothills to begin as low and as level and as soon as possible.

In the gloomy winter of late 1864 the President had to cast off for the moment his burden of dark war and transfer his thought to a foreign field—moreover, to a region that he had never seen. Where did the Sierra Nevada Mountains start, east of Sacramento, on the line of the Central Pacific Railroad?

Thousands of dollars were at stake; his only recourse was geological maps and the advices of experts, and of well-wishers biased in one direction or the other.

Congressman Sargent is said to have proved by a map of his own that the reddish soil of the slopes and the black soil of the valley met seven miles northeast of Sacramento. But let it be admitted that the map was drawn by authority; for the company had been supplied with letters from State Geologist Joseph Dwight Whitney, of illustrious name; from the United

States surveyor-general for California, Edward Fitzgerald Beale, likewise unimpeachable; from J. F. Houghton, the State surveyor-general: all agreed upon the one initial point—the crossing of Arcade Creek.

Forthwith the bothered National executive so decreed, in all good faith. By date of January 12, 1864, he issued the dictum: . . . "the point where the line of the Central Pacific Railroad crosses Arcade Creek in the Sacramento Valley is hereby fixed as the western base of the Sierra Nevada Mountains."

Thus by a stroke of the pen the base of the Sierra was moved twenty-four miles westward; and for construction across an easy-rolling country the Central received the Government top bonus of $48,000 a mile and was authorized to market its bonds in same amount.

Even under these extended limits the 150 miles carried the work over the actual mountain portion and down into Nevada; but the desert portion beyond proved no sinecure at the $32,000 a mile.

The Central seemed to have grasped fortune by the forelock, and did not loosen its hold.

In September the company treasury contained $7000 in cash and the books showed only trivial indebtedness. The first eighteen miles were more formidable than expected, owing to riprapping the grade along the unruly American River and the expense of a bridge across that stream; the sledding onward to Newcastle taxed the abilities of the engineers to obtain easy grades and curves while making distance among the foothills.

Beyond Newcastle the company virtually did its own building, forming from its membership two construction firms and applying the profit, if any. Presently it had capital, either through its stock and its hypothecated securities or regularly earned.

It laid a wagon road from Dutch Flat, west of the summit, across to Carson Valley of the Nevada mining district; and by this road, which aroused accusations in press and on street corner that Dutch Flat was to be the terminus, traffic was attracted to the rails.

The company began to buy in its outstanding stock —realizing the steady glow of the future. It triumphed over all opposition, physical and sentimental. By Government consent it assigned its subsidy rights to the Western Pacific Railroad, in order to utilize that now building line as its branch from Sacramento to San Francisco. It was due to be called the " great absorber."

When one surveys the careful yet bold handling of their every resource by this little group of men, each of whom had made his own way up from a restricted boyhood, there can be no wonder that wealth inevitably amassed for them—that vast railroad projects gravitated to them; that Charles Crocker, who had started from home with a cotton shirt, a linen " dickey," a pair of socks, and all his other possessions wrapped in a handkerchief, should write his check for a million; that the names of Stanford and Huntington are golden, and that the latter eventually rode from the Pacific to the Atlantic in his private car over his own lines.

III

Union Pacific Men and Methods

The title "Union Pacific" would seem to admit of little controversy. Before the passage of the act adopting the name a bill by Senator Curtis of Iowa is said to have proposed it; and during the pre-war debates upon the Pacific Railroad Senator Wilson of Massachusetts applied the stigma "dis-union route" to the southern survey.

The act authorizing a road that should meet the California road was passed at a time when the word "Union" was doubly significant. However, the claim has been advanced by one or two historians that the title was based not upon a union of country, but upon the proposed union of branch lines which, issuing fan-shape from the Missouri River, should join at the 100th meridian, to proceed on as the single main line.

The argument is too prosaic to be popular; and too haphazard to be tenable.

As an institution the Union Pacific Railroad radically differed from the Central Pacific Railroad. The Central was organized under a State charter, to build in California; it was a private company, and as such it had appealed to the Government for aid. Supervision by the United States was exercised to protect the Government's security for the loan. But by accepting the provisions of the act which governed the loan, and as a

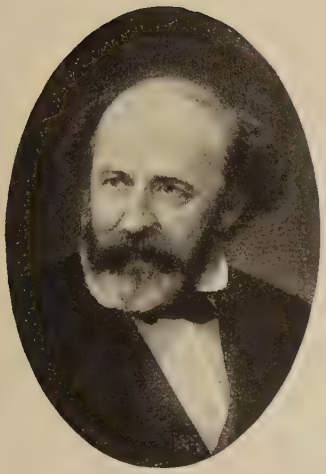
common carrier when it extended across the State line, the Central obviously came under the provinces of National legislation.

The Union Pacific was Government born and was national in its machinery. It operated by a Federal charter, based upon that clause in the Constitution (applying to the Central also) which directed the Government "to regulate commerce with foreign nations, and among the several States and Indian tribes, to establish post-offices and post-roads," to organize the army, and so forth. Through its Government directors it was answerable to the Secretary of the Interior in same measure that through its other directors it was answerable to its stockholders. Its route as projected lay entirely through Territories, where the Federal rights were supreme.

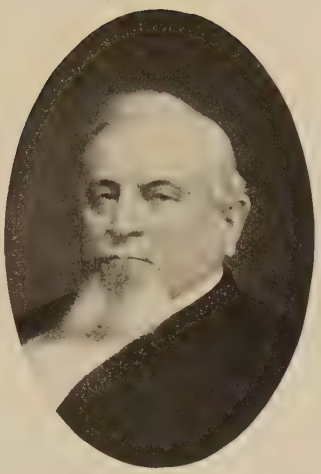
Out of all the men who formed the directorate and the executive staffs of the Union Pacific some eight eventually bore the brunt of battle through to the meeting of the rails at Promontory Point.

These were Oakes Ames and Oliver Ames, of Boston; Dr. Thomas C. Durant, of New York City; John Duff, of Boston; Sidney Dillon, of New York City; General John Stevens ("Jack") Casement and Dan T. Casement, of Ohio, but with headquarters at Omaha; and General Grenville M. Dodge, of Council Bluffs, Iowa.

The Ames brothers, Oakes and Oliver, were shovel and tool manufacturers at Easton, Massachusetts—



COLLIS P. HUNTINGTON
Vice-President Central Pacific R. R.



CHARLES CROCKER
Supt. Construction Central Pacific R. R.

From Paintings in Crocker Art Gallery, Sacramento

GENERAL "JACK" CASEMENT
Champion track-layer of the Continent

OAKES AMES
Who spent his all in aiding the Union Pacific

they having taken over the business, one of the oldest in New England, from their father in 1844. It was thereafter conducted under the firm title of Oliver Ames and Sons. The announcement of gold in California in 1849 and the resultant opening of the trans-Missouri country by the feverish emigrants vastly stimulated the company's business, so that its output increased by leaps and bounds. The product of the factory was backed by the inherent honesty of the methods employed. As Henry B. Blackwell said, at the dedication of the Oakes Ames Memorial Hall, 1881: "I remember a good many ups and downs in the currency of the country, but there is one thing which has known no ups and downs since that time [forty years back]; for then, as now, the Ames shovel was legal tender in every part of the Mississippi Valley." And as a Boston merchant related, among all the natives, no matter how ignorant nor how frequently defrauded by poor goods, in South Africa, he found none who didn't have and appreciate Ames's shovels.

Oakes Ames, the senior brother, at the outbreak of the Rebellion was a member of War Governor Andrew's cabinet, in Massachusetts, as Republican Councillor from the Bristol District. He was fifty-eight years old when from his Councillorship he was sent by popular vote to the House of the Thirty-eighth Congress, where he became a member of the committee on railroads and helped to draft the various measures that culminated in the Act of 1862. He was passing his

sixtieth year when in 1865 President Lincoln first personally requested him to assist in tiding, by material means, the Union Pacific over its rocky way.

The building of the Pacific Railway naturally opened another promising trade avenue for the Ames factory. The Old Colony brand of shovels dug the Union Pacific grade. But there is nothing to show that this prospect influenced the Ames brothers beyond ordinary business prudence, or swayed them to any misuse of their financial connections. Oakes Ames was now a man of wealth, of unchallenged integrity and undoubted patriotism. He responded to President Lincoln's appeal by investing $1,000,000, raising an additional million and a half and putting all the resources of the factory at the road's disposal, on whatever terms. He pledged his credit to the danger point. Like Charles Crocker, his heart was in the work. While still congressman, in 1873 he was censured by the House investigating committee for alleged improper distribution of finance stock among the National legislators. Ten weeks after, he died, a worn-out, broken man.

He left to his son, Oliver (in 1887 governor of Massachusetts), a factory encumbered by staggering debts incurred on behalf of the railroad. These were cleaned up to the last dollar; and, of even greater satisfaction to the name of Ames, the father's public record was vindicated by time and by resolution of the Massachusetts legislature.

Oliver Ames, the brother, silent partner in the

manufactory, was the president of the Union Pacific Company during its closing construction career. He and Oakes portrayed the sound New England type of American citizen: shrewd, vigorous, substantial, conservative, and hanging on to the last inch when once they got their teeth set. "Stand by the company and let the Ameses take care of themselves," Oakes Ames wrote to Chief Engineer Dodge—who adds: "Nothing but the faith and pluck of the Ameses, fortified with their extensive credit . . . carried the thing through." They might be termed the Big Two of the Union Pacific, as opposed to the full-blooded, perhaps more speculative Huntington and Stanford of the Central.

Instead of Senator Benton's Columbus, a massive monolith in shape of a stone pyramid, dedicated to the Ameses, was erected beside the Pacific Railway line, upon the highest point, Sherman Summit.

Thomas C. Durant, a thorough railroad man, was the company's vice-president in construction days, but upon him devolved the duties of president also. As general agent for the company in the East his work paralleled that of Huntington for the Central: to raise money, money, money, and to mould National legislation. He had had practical experience in railroad building, when with Henry Farnam, of Chicago, he had engaged in the construction of the Mississippi and Missouri in Iowa; but by pledging the paper of the firm, Durant and Farnam, to cover certain ventures he

had badly involved his partner and had ruined the immediate onward progress of the road. He was of unlimited energy, aggressive spirit, and swift ambition; and the extravagant means which were employed in the expense accounts almost ruined him likewise. His railroad career ended with the joining of the tracks.

To the Casement brothers, General "Jack" and Dan Casement, fell the immense supervising contract for laying the 1000 miles of track and for doing most of the grading beyond central Nebraska. The general, ranking as brevet brigadier, had performed valiant service with Ohio troops in the war. His fighting qualities were farther developed in the railroad work. There are many stories told of "Jack" Casement—gritty, tireless, some five feet plus in stature and weighing in proportion, but with the capacity of being as hard as the hardest. He had all the driving power of Charles Crocker, whom he opposed.

His post was the front, in the construction camps at end o' track, or in his car at the tail of the work train. His brother Dan, of similar mettle, attended mainly to forwarding the supplies from the last base.

John Duff, of Boston, early a director, proved to be one of the loyal attachés whose interest in the company was exceptionally keen. He accepted every opportunity to make trips over the completed line, sent his son as a guest with Chief Engineer Dodge upon an advance survey expedition clear to Salt Lake, and was honored by having his name registered in Duff's Peak,

north of Rawlins, Wyoming. In 1873-1874 he was vice-president of the company.

Sidney Dillon, of New York, had been a railroad man ever since his beginnings in 1834 as train boy upon the Albany and Schenectady Railway. He served the Union Pacific (a service, according to his testimony before the United States railroad commission, to which he devoted his best twenty years) as president of the construction company, and after construction days as president of the operating company itself. Born in 1812, in the sixties he was a self-made man of brisk but courtly address, and of the English type with side-whiskers already turned white.

If the Central Pacific had its Judah, the Union Pacific had its Dodge. Major General Grenville Mellen Dodge, engineer and soldier, was thirty-five when in the spring of 1886 he became chief engineer of the Union Pacific Railroad; but for a dozen years he had been an enthusiast upon the topic of an iron trail from the Iowa border to the Salt Lake.

He had graduated from the Norwich, Vermont, military and scientific academy; had immediately gone into the Western country as surveyor under Peter A. Dey, in the field corps of the Chicago, Rock Island and Pacific (the Mississippi and Missouri Valley extension), then planning to cross Iowa. His assignment carried him into the little-settled Platte Valley of 1853, beyond the Missouri. Before he was twenty-five, by personal exploration and inquiry he had thoroughly

mapped the region from present Omaha to the mountains, was in position to recommend the later U. P. route up the Platte and over the Black Hills as that most feasible for a transcontinental line—and soon told Abraham Lincoln all about it, in the Pacific House of young Council Bluffs.

Recalled from plains and mountains by the war, he speedily rose to be corps commander under Sherman before Atlanta, at thirty-three was major-general of volunteers, at thirty-four was in charge of the plains operations against the hostile Sioux and Cheyennes who were raiding overland travel; and after five years of fighting and engineering in the uniform was released from military duties, May 1866, to head the surveying corps of the struggling Union Pacific.

He was President Lincoln's own selection at a critical period. He brought to the office a high reputation for character and efficiency and an exact knowledge, fresh to the minute, of the northwest plains and mountain country. Moreover, he was inspiring, indomitable, devoted to his profession, well seasoned in spite of his moderate years, and devoted to the principles of his two professions.

The good judgment with which he approved of the final surveys is demonstrated in the fact that when, thirty years after the completion of the road, the Harriman management took charge, although millions of dollars were expended in attempts to rectify hasty grades and curves consequent upon the fast work and

limited mechanical means of the early days, the whole distance from Omaha to Ogden, upwards of 1000 miles, was shortened by less than forty miles.

Verily, those days of railroad building in the West seem to have been young-man days—though perhaps not more so than now.

Colonel Silas Seymour, of New York, an expert in railroad construction, was appointed consulting engineer to Chief Dodge. They did not always agree, but Dodge usually was right.

Among the division chiefs there were Samuel B. Reed, Thomas H. Bates, James A. Evans, F. M. Case, Percy T. Browne, L. L. Hills (these two killed by Indians), J. E. House, Marshall F. Hurd, F. C. Hodges, James R. Maxwell, John O'Neill, Francis Appleton, J. O. Hudnut, J. F. McCabe, Jacob Blickensderfer, Jr., and Thomas B. Morris. The field covered by the Union Pacific was much larger than that of the Central Pacific; 25,000 miles of exploratory trips, afoot and ahorse, were made, 15,000 miles of instrumental line were run, throughout a strip 200 miles wide from the Missouri River to the California border. From this pioneer service for the Union Pacific many of the engineers stepped into post-graduate work upon succeeding transcontinental roads.

Samuel Reed soon was taken from the field and appointed superintendent of construction—a position analogous to that of Strobridge for the Central. Major Hurd became his assistant. A number of these engi-

neers, like young Hurd of Iowa, had won their spurs in the Civil War. Hurd himself had been upon General Dodge's engineering staff as a private. Following the Union Pacific days, he and Superintendent Reed joined the location corps of the Canadian Pacific.

David Van Lennep, of the New York School of Mines, was appointed geologist for the road, to examine the country in advance, determine its resources of coal, building rock and ballast, and minerals.

Of the Government commissioners who assiduously chased end o' track in the "Lincoln" car, approved of the completed sections, twenty and forty miles at a stretch, and on occasion helped to fight off the Indians, there were Lieutenant-Colonel J. H. Simpson, U. S. Corps of Engineers, and an explorer in the great Utah basin himself; Major and Doctor William M. White, soldier and congressman; Major General Francis P. Blair, of Missouri, newspaper man and politician; Major General Samuel R. Curtis, the sterling Iowan; Jacob Blickensderfer, Jr., the Ohio engineer; Major General G. K. Warren, of the army; and others perhaps now less prominent in National annals. Among those for the Central Pacific, may it here be noted, there was F. F. Low, minister to China and in 1863 the successor to Leland Stanford as governor of California.

Of the Union Pacific Government directors who figured largely Jesse L. Williams, an authoritative engineer of Indiana, was the most active, not only frequently making, out of expert knowledge, separate re-

ports upon the construction, but also in 1866 examining the experimental surveys in the Colorado Rockies. Congressman T. J. Carter, of Illinois, as director accompanied General Dodge upon an inspection of the Black Hills and beyond at the time when Commissioner Blickensderfer, especially assigned by President Andrew Johnson, accompanied to determine the real eastern base of the Rocky Mountains. Congressman Charles T. Sherman, cousin of General Sherman and Statesman John Sherman, likewise performed earnest service upon the Government board.

Although the Government directors on the U. P. were laughed at by Huntington of the Central, who said that whenever they wished to "go fishing" they took a car and went, for the stipend of their expenses and a small per diem they certainly put in a great deal of valuable time. Some of them did see new and interesting country; maybe fished.

When calling the roll of the active aiders and abettors of the Union Pacific the name of Major General William T. Sherman should by no means be omitted. In the beginning rather skeptical of such a project ("Let the railroad alone; it will cost so much money that it will break down any administration that adopts it as a party measure," he had warned his senator brother; and in 1859: "It will not receive enough net profits to pay interest on its cost"), the military needs of quick transportation through the Indian country brought him to its full support. As General Dodge's

former corps commander and present zealous friend, and as commander of the Military Division of the Mississippi through which the transcontinental would extend, he instructed officers and men in all his western departments to lend every possible aid to the protection of the surveys and track-building. In 1865 he sat on a nail-keg upon a flat-car of the first train to end o' track, fifteen miles.

From General Grant, head of the army, down through Sherman, Sheridan, Crook, and all the uniform attached to plains and mountains duties, the Pacific Railway received generous assistance; "and it took a large stretch of authority to satisfy all our demands," General Dodge remarks.

"What makes me hang on is the faith of you soldiers," Oakes Ames said to him in the darkest days of the construction period.

By the Act of 1862 twenty-five of the 163 commissioners appointed from twenty-two States and three Territories constituted a quorum. On call by the Illinois members the board held its first meeting in Chicago, beginning with September 2, the same year. Former Senator Samuel R. Curtis, now a major general in the Federal army, occupied the chair.

The act was accepted—the acceptance being filed in the Interior office the next June (1863), which was within the year limit. Henry B. Ogden, whose railroad career was well under way, was elected president of the Union Pacific Company; Thomas W. Olcott, of

New York, treasurer; Henry V. Poor, of the Government appointees, secretary.

Upon recommendation of Henry Farnam, Peter A. Dey, of Iowa City, Iowa, was selected to be the chief engineer.

Mr. Dey, another of Iowa's great men, distinguished not only in his younger days as a railroad engineer but in his later days as dean of the State railroad commission, had been the chief engineer of the Chicago, Rock Island and Pacific extension projected and partly built by Messrs. Durant and Farnam; and he had been also the mentor of the younger Dodge, at this date serving the colors as a brigadier general.

Pending the first annual meeting of the company, at which permanent organization should be effected by the election of officers and a board of directors, Engineer Dey was instructed to make reconnoissance for a route up the Platte Valley and across to Salt Lake.

This he did; but at the meeting, held in New York City October 29 and 30, 1863, little substantial progress could be reported. To be sure, the Dey exploratory surveys had confirmed previous surveys, as run by the Dodge parties for the Rock Island line to the Rocky Mountains and beyond. However, of the 100,000 shares of capital stock, aggregating $100,000,000, only some 1500 had been subscribed—and these mainly as a loyal effort upon the part of a few patriotic citizens who contemplated merely enabling the company to meet the provisions of the act.

The belief of Congress and the faith of President Lincoln that the American public would rally to the support of a National road were proven to be fanciful. As in the case of the Central, war-time investors at large shied from the lure of a first mortgage covering, on the distance between the Missouri and California, a loan of $35,000,000 and interest at 6 per cent.; and the prospective assets of 6,000,000 acres of lands, much of them located in a so-called unproductive desert region, appealed no more than did the currency bonds.

Indeed, the task before the Union Pacific far dwarfed that before the Central, who had to build only fifty miles, difficult though they were, into waiting traffic, while the Union was to build 1500 miles, long stretches of what tapped no settlements whatever.

There were the Colorado gold fields, the city of Denver, and the produce of the Salt Lake Valley, with, of course, the Pacific coast at the far end, as trade sources; but the whole Territory of Nebraska contained scarcely 35,000 people. From central Nebraska to the Salt Lake Valley the country was deemed a barren waste. Congressman John A. Rockwell's report upon the Whitney scheme in 1849 had estimated that the annual upkeep of a Pacific Railroad would exceed $1,000,000; that there was no fuel en route, and that owing to the inconvenience of trans-shipment not a chest of tea would be sent over it from Canton.

Samuel Bowles, the *Springfield Republican* man, for the year 1864 figured that the freighting traffic by

wagon across the plains moved 40,000,000 pounds at an expenditure sufficient to provide a transcontinental railroad with receipts of $48,000 a mile. But the East had not yet awakened to this enormously growing plum from which the overland stage and freighting companies were taking generous bites.

In the apparent consensus of opinion, endorsed by Durant himself, the road never would pay; it would be only a measure of Government utility. General Sherman had named $200,000,000 as the sum necessary to complete the line from river to coast—and the Central's end was but 140 miles; the Chicago roads utterly declined to see any profit in taking over the Union Pacific contract, despite their Eastern connections.

Fortunately, the young General Dodge had been summoned this spring of 1863 from his Military District of Corinth to Washington for an interview with the President. Lincoln had remembered the talk at Council Bluffs in 1859. By the Act of 1862 he was empowered to fix the point for the Missouri River terminus. Now he relied upon the advice of Dodge, the boy surveyor from four years ago.

Towns upon Iowa's western border for a distance of 100 miles above and below the mouth of the Platte River were competing to secure the terminus. There really could be little question as to the proper location. T. J. Carter, one of the two Government directors (the other being Springer Harbaugh) had been reconnoitering out of the little hamlet of Omaha for a good cross-

ing of the Missouri, and had transmitted his recommendation to the President and the Secretary of the Interior. The Chicago railroads were focussing upon Council Bluffs, opposite Omaha; Council Bluffs was the logical juncture for the transcontinental route. In taking up his residence at Council Bluffs, Dodge had foreseen this.

November, of this year, the President issued his fiat (made more explicit by his proclamation of March, the next year) designating that portion of the western boundary of Iowa lying opposite the United States township of Omaha "as the point from which the line of railroad and telegraph in that section mentioned shall be constructed."

As yet, the terminus of the main line was to be the 100th meridian, 247 miles into Nebraska. This was later changed. But the proclamation, and the matter of the bridge, brought on a long and acrimonious rivalry between the two towns, Omaha and Council Bluffs, for Union Pacific favors.

Ambitious Omaha, suddenly on the up-grade, referred to Council Bluffs as "East Omaha," "Milkville" and "Iowa-town"; while the Bluffs, through all the construction years waiting to be connected up by a bridge and to get a rightful share of the terminal business, retorted with "Bilkville," "Train-town" and "That Union Pacific Depot across the river."

At the interview of General Dodge with President Lincoln the finances of the road were thoroughly discussed. "He was very anxious that the road should

be built," the general narrates—and adds that he himself urged upon the President the necessity of Government construction entirely. Private enterprise was not equal to it.

The careful Lincoln could only reply that to build the railroad was beyond the Federal abilities at this time; but that the Government would make any changes in the existing law, or extend any other reasonable aid calculated to enlist private capital.

Dodge, who kept in close touch with the company affairs, snatched leave from his war duties personally to bear the President's encouraging promise to the New York offices.

At the meeting of the stockholders there, in October, 1863, thirty directors were chosen, and officers elected in the persons of General John A. Dix, president; Thomas C. Durant, vice-president; Henry V. Poor, secretary; John J. Cisco, treasurer.

This accomplished, the parent body of commissioners automatically ceased to function. The ship *Union Pacific* had been launched.

General Dix never filled the duties of his office. Veteran of the War of 1812, honored by several chairs of state in New York and one time the Free Soil candidate for governor, as Secretary of the Treasury he had uttered his famous order, "If any man attempts to haul down the American Flag, shoot him on the spot," and now, at sixty-five, was major general commanding the Seventh Army Corps.

Vice-President Durant acted as chief executive besides being financial agent and business manager. At the last, in the words of Journalist Richardson, the New York *Tribune* traveller, "he from his quiet office in New York directs by telegraph the labors of twelve thousand men—an army which it requires generalship to handle, particularly when its commander must be paymaster as well."

The moneyed men of the East had not yet been convinced; no immediate aid seemed likely, except the cautious donations of $100 a share on shares whose par value was $1000. But, basing their plans upon the President's reported attitude and a strong lobby to work in conjunction with a Central Pacific lobby, anticipating the resultant Act of 1864, the company instructed Engineer Dey to run survey lines this fall on the route as endorsed by himself and his former subaltern Dodge; to extend them up the Platte Valley, across the first range known as the Black Hills Range, and to the Wasatch Mountains of the Utah border.

Ground was broken at the straggling village of Omaha, December 2, 1863. George Francis Train, original genius and eccentric financier—about to acquire 500 acres here and to boom town sites out along the line—made the principal speech, in which he predicted that the road would be completed within five years. Many persons laughed; but he did not far miss his guess. Governor Saunders of Nebraska wielded the spade.

Telegrams were received from East and West, congratulatory: from the mayors of New York and Denver, from Governor Yates of Illinois and Governor Stanford of California; from President Brigham Young of Utah, and from President Lincoln at Washington, through his private secretary, John Hay. Great names attached to the event. The canvass of the Pacific Railway was large.

Sidney Dillon says that the celebration exhausted the company's treasury.

Grading was deferred for almost a year, awaiting financial backing. Forty miles of road, estimated to cost $1,000,000, had to be completed without Government aid direct.

At the close of this year the stock subscriptions had increased to 2177 shares; but the treasury receipts comprised only the 10 per cent. down, or $217,700. Men foremost in the commercial ranks of the country appeared upon the list. The largest blocks signed for were in fifty shares, as taken by Cornelius Bushnell, of the New York merchant princes; Edward Cook, the Iowa capitalist; Thomas C. Durant himself, H. C. Crane, E. T. H. Gibson, and two or three others to-day known or unknown. General and President John A. Dix, George Francis Train, William B. Ogden, Treasurer John J. Cisco, Samuel J. Tilden, the great lawyer; Merchants William E. Dodge and Moses Taylor, to whom Huntington also had appealed, were among those subscribing for twenty shares. Thurlow Weed, of Albany,

and Banker Augustus Belmont, Lincoln's war diplomat, were among those who subscribed for ten shares; Brigham Young, the Mormon president, for five.

Subscriptions had now practically ceased, with $2,177,000 in sight but not due except in driblets. By private means and by State means the Central Company had boldly let its first contract and had started from its Sacramento terminal. In the year and a half since the passage of the act the Union Pacific had not opened a foot of grade. Luckily, the Act of 1864 relieved the time limitations upon the completion of the first one hundred miles, and also appealed again to the purses of cautious capital.

The relieving Act of 1864 is among the Ifs of history. There is another "If," less exploited, which relates to Samuel Hallett and his own Pacific Railroad.

The Leavenworth, Pawnee and Western extension to join the Union Pacific at the 100th meridian had been waiting. Early in 1863 Hallett, a young banker, stirred by the beck of empire and romance, came out from New York State to do the deeds of youth. He financed the proposed extension, authorized by the Act of 1862 and later rechristened Union Pacific Eastern Division, and Kansas Pacific. The restless John C. Frémont became the president.

In the heart of present Kansas City, Kansas, Hallett in August cleared a terminus at the river bank, amidst the thickly timbered bottoms, and hacked a right-of-way through the forest trees; planted at the water's

edge a post, whose eastern face challenged Missouri with the word " Slavery," whose western face greeted Kansas with the word " Freedom."

" And thus the Pacific Railway was begun."

He had completed some forty miles of track when he was assassinated upon the street in the village of Wyandotte, Kansas, by an employe, who shot him through the back.

" Hallett was a man of genius, of boundless energy and enthusiasm, fertile in expedients, bold and prompt in action. Had he lived he would have been the master spirit in the construction of the Union Pacific Railway, and probably one of the leading railroad men of the country."

This is the claim by the Kansas statistician in a Government report. At the rate with which Hallett's enthusiasm was building his head start might have carried him to the 100th meridian before the arrival there of the main line from Omaha; and the provisions of Congress would have inspired him to push on, winner in the race. The Union Pacific tracks did not reach the meridian beyond Kearney, at mile-post 247, until October, 1866.

The Act of 1864 became operative by approval of the President July 2. In the light of these new provisions the Union Pacific Company rallied. This August a contract was let to Hubert M. Hoxie for the building and equipping of the first 100 miles west from Omaha at $50,000 a mile, reckoned in securities at face

value; sum total, $5,000,000. Owing to shortage of labor and the balloon ascent of all material, construction and equipment expenses had swelled as in the case of the Central.

Mr. Hoxie had been in charge of the company ferry between Omaha and Council Bluffs. He did not go far with his contract. The company decided to do away with independent contractors (thus pursuing the course taken by the Central also), and entrusted its building march to the financial corporation formed of its stockholders and entitled, at the suggestion of the irrepressible George Francis Train, "The Crédit Mobilier of America." The name, under the searchlight of Congressional investigation or prosecution (as may be), was accused of covering a multitude of sins. It killed Oakes Ames and peppers volumes of committee reports; but at any rate the road was put through.

Contractor Hoxie was appointed assistant superintendent in the train operating department, and served efficiently in getting supplies to the front.

The Peter A. Dey survey of the first forty miles from the Missouri River was overruled, upon recommendation of Consulting Engineer Seymour and Government Director Jesse Williams. In January, 1865, Mr. Dey resigned his office. "I am giving up the best position in my profession this country has offered any man," he said, in his letter to the company. Grading to the extent of $100,000 had been applied to his sections. He testified in after years that the mounting expendi-

tures appalled him. Those were indeed days to worry a conscientious engineer—days when in the try-out no estimates seemed high enough.

If as chief engineer he was expected to shoulder the responsibility for the line, yet was not allowed to follow the dictates of his own judgment, he had no other recourse than to resign. Time rewarded him, for forty years after the completion of the road his grades were restored for main traffic.

J. E. House and D. H. Ainsworth, assisted by Colonel Seymour, filled the interim as the construction and location engineers out of Omaha.

The financial investments were taxing the resources of the company. The delay in completing the first twenty miles of track was serious; the completion of the first 100 miles within the time limit looked dubious.

Pending the result upon capital of this amendment, and planning also to issue land bonds covering their grants upon either side of the line, the company proceeded to meet the present emergency. The ways and means are piquantly detailed in the testimony of Broker John Pondir before the United States Pacific Railway Commission in 1887.

Broker Pondir, a man of voluble grievances and considerable aplomb, stated that in May, 1865, he was introduced by Secretary of the Interior Harlan to Doctor Durant, the Union Pacific vice-president, in Washington. Mr. Pondir's services were requested to finance

the Union Pacific. Doctor Durant approved of him, and Treasurer Cisco telegraphed: "Stick to Pondir."

The "Boston people"—evidently that wealthy circle which included the Ameses—had not come in and capital was still shy of embarking in the National enterprise. Broker Pondir engaged to find money—"I arrived in New York, and I made up a syndicate and I gave them a million dollars in five days."

Mr. Pondir was a man of resource and of action. He set out to increase the fund by obtaining from all the banks of the city an investment of 5 per cent. of their capital. He applied to the Manhattan Bank and the Phœnix Bank.

"They told me, 'Mr. Pondir, you must go to Charles H. Russell, of the Bank of Commerce, and if he puts his name to it [the plan] you will be very successful in carrying it out.'"

Treasurer Cisco agreed.

"If you can get the Bank of Commerce to come into it, the balance of the banks will follow."

The directorate of the Bank of Commerce held a called meeting and questioned the validity of the Government subsidies. Attorney Jerry Larocque had been appointed to look up the legal aspects of the act; he submitted to Broker Pondir an opinion that "the whole act of Congress was illegal."

"A man never lived that was a better man. He was convinced of it," stated Mr. Pondir, in retort to the

comment that Attorney Larocque was a Democrat, albeit Examining Commissioner Anderson's cousin.

This opinion might have put a quietus on the campaign, but with General Dix himself, the company's president, and Treasurer Cisco, Mr. Pondir sought out Mr. Daniel Lord.

Said Mr. Lord:

"I will give you an independent opinion. I do not want to see Mr. Larocque's opinion; I do not want to see Mr. Tracy's opinion, or Mr. Tilden's opinion [these were the company's attorneys]; but I will give you an independent opinion on the affair, if you will leave it to me!"

Mr. Lord reported that everything pertaining to the act of Congress and to the Union Pacific Railroad was valid.

The Bank of Commerce accepted the Lord opinion; would not allot 5 per cent. of the bank's capital, but offered to make a loan of $1,000,000 on the scrip of the Government "to be put in at 90," exchangeable for bonds, "currency 6's."

"As long as Pondir is with us, we will finish the road in 1876," General and President Dix praised, pleased with the quick $2,000,000.

In the words of Mr. Pondir, "after these loans had been effected the Boston people came on"; so did the Crédit Mobilier construction company, and for a time the Union Pacific management "had all the money they wanted." Much to his surprise Broker Pondir,

who appeared about to fill the rôle of intermediary, similar to the rôle of Fisk and Hatch for the Central, soon was released from further responsibility. The Ameses had taken the financial helm.

The first rail was laid, the first spike driven, at Omaha, the "initial point," July 10, this 1865. By the close of the year forty miles of track had been completed. The company had confidently expected to lay sixty miles of track before the close of the year. But the start was again short of the purpose. The discussion over change of route from the river bank, by the Dey survey, bombarded President Lincoln's successor, Andrew Johnson, and kept Omaha and Council Bluffs on the anxious seat for a longer time. By the recommendations of the engineers, the bridging of the river should be accomplished at Bellevue, seven miles below Omaha and the Bluffs. The river was not bridged, anywhere, until half a dozen years later; and it did not cross at Bellevue; but the changing of the original Dey survey postponed track-laying in earnest from mid-July to September.

With the opening week of January, 1866, forty miles of rails were down at last. Brick machine-shops and engine-houses had been erected at Omaha. A seventy-ton stationary engine for the shops had been hauled 150 miles across western Iowa by ox-team and ferried over. Four locomotives, two first-class passenger cars, twenty-five second-class passenger cars, baggage- and box-cars, thirty-four platform- or flat-cars and nine

hand-cars had arrived by steamboats up from St. Louis. Over 1,000,000 ties had been delivered; the cottonwood ties were being Burnetized or impregnated with zinc at the rate of 1000 daily. Several thousand cords of wood for the engines had been heaped up. In the Missouri River bottoms north and south five portable sawmills were turning out more ties, more wood, and bridge and car lumber. Preliminary surveys under Division Chiefs Reed and Evans had been run to the Humboldt, 200 miles west of the Salt Lake. The grade had been extended to the 100th meridian, and surveyors there had already been driven in by the Indians.

After having marked time for three years the Union Pacific track finally had obeyed marching orders. It was started upon its long, long trek into the wide, scarcely known West—reaching forward from its one base at Omaha to touch its next base at new Frémont, like a great measuring-worm staking off an experimental way.

IV

Progress of the Central Pacific

With the beginning of July, 1864, and while yet the Union Pacific had not laid a rail out of Omaha, the Central Pacific had opened thirty-one miles of track to Newcastle—an initiatory climb of almost 1000 feet in the 7000 feet of rise to the snowy summits of the Sierra, now seventy miles distant.

Vastly relieved in mind by the Act of 1864, coincident with the arrival at the first terminal point, the company was confronted apparently more by physical than by financial difficulties.

Over a million and a half dollars in capital stock were about to be disposed of, and out of this there would be due, on the books, only some $135,000 unpaid. From the State the company was entitled to $105,000 annually for twenty years. County bonds soon to be available aggregated $638,500. For thirteen out of the first twenty miles of the completed road the company was entitled to $48,000 a mile in Government 6 per cent. bonds, and upon the same distance might issue its own first mortgage bonds in same amount; therefore it had potential resources of $96,000 a mile for the thirteen miles, and $32,000 a mile for the remaining seven miles out of Sacramento. The gross receipts of the road, when it had reached Newcastle, were $121,679.10, and with the extension of the rails would steadily mount.

But a great proportion of business was being done upon paper. The majority of the capital stock had been exchanged for the county bonds at par and for services rendered. The small sub-contractors had been paid largely in cash or equivalent; Charles Crocker had been paid by three-eighths stock and bonds, five-eighths cash or equivalent—the equivalent being bonds at a discount of 50 per cent., their actual marketable value.

Gold was the only medium of business on the Coast, and during the war was at a premium of $1.32 to $1.48. The Government and company bonds sold in West and East at an average of $1.34. The buying power of currency dropped to as low as forty-two cents; its high mark was eighty-three cents. There was a time when it took three dollars greenbacks to obtain one dollar gold, and the Government currencies brought only forty cents gold. In the beginning the Government currency bonds at 6 per cent., and the company bonds, were practically a drug in California, where the local interest on loans and investments was running 2 to 3 per cent. a month; the same condition militated against the company stock. In the East Vice-President Huntington, as before related, had his own hard row to hoe.

The issuance of the Government bonds was long delayed. The first issue, in amount of $1,258,000 was dated May 12, 1865, bore interest from January 16, and was not delivered, according to the company records, until 1866.

By the time these bonds were in hand they and prospective issues had been hypothecated long back, and pledged by other securities, to obtain the working funds. In the depreciation of currency the company was due to lose on the Government bonds over $7,000,000. But time forbade any arguments on the matter.

The prices of material were astounding. Practically everything save the ties and timber and masonry had to be shipped from the East around the Horn or transferred across the Isthmus. By the cheapest way, around the Horn in sailing vessels, the delivery took six months.

Having been confined by the act of Congress to American iron, the company found the price boosted rapidly, and the situation was aggravated by war conditions. For the first fifty miles of rails, or 5000 tons, the company paid $115 a ton, at New York and Boston, in company bonds taken at par. For a lot of 500 tons, in stock at the mill, there was paid $262 a ton, or $267.50 a ton delivered in New York. The average figure asked for iron rails at the mills, during the construction of the road, was $91.70 a ton, as compared with $55 in 1861. The freight rates by the Horn averaged $17.50 a ton; by the Isthmus the rates mounted to over $50 a ton. Insurance advanced from 2½ to 17 per cent.

Twenty years afterward the best steel rails cost, in California, $45 to $56 a ton; in the East, $35 to $36.

Engine No. 1 cost, delivered, $13,688; on this the

freight by the way of Cape Horn to San Francisco was $2282. Engine No. 2 cost $15,196; No. 3 cost $9785; No. 4, $10,366; No. 5, $16,629; No. 6, $18,549.

The first ten engines summed $191,000; the second ten summed $215,000. These were small locomotives of twenty to thirty tons, illy compared with the 100-ton moguls of to-day; their cylinders ranging from eleven-inch bore and fifteen-inch stroke to eighteen-inch bore and thirty-inch stroke; the majority, however, being of sixteen-, seventeen- and eighteen-inch bore, twenty-two- and twenty-four-inch stroke. Those dimensions were adopted through twenty years and more, when similar engines might be purchased for $7000 and $7500. Before the war, the rolling stock figures would have been reduced by a third, with $10,000 as a top price on a locomotive.

By the Isthmus route, steamer and land, freight rose as high as $8100 on a single engine. A rush order for two engines across the Isthmus resulted in an expense of $37,796 on one, when set up; on $37,710 for the other. On a shipment of eighteen engines the freight charges alone were $84,466.80.

The Government tax was 6 per cent.

The engines arrived at San Francisco "knocked down" or disassembled; there were transferred or lightered, like all other material, for shipment by boat up the Sacramento River, and were assembled at the Sacramento shops.

Prices were relieved but little as construction pro-

ceeded. In 1868 thirty-eight locomotives cost $418,000, or $11,000 each; passenger coaches were entered at $3500 each; flat-cars at $600; hand-cars at $150; all in gold—premium $1.65—which brought the price of the engines up to $18,150 each, currency.

Spikes ruled six and one-half cents a pound, as compared, later, with two and one-tenth cents; fish-joints rose from $1.90 to $6.50 a hundred pounds, as compared, later, with $1.70; bar iron was $110 and $115 a ton, as compared, later, with $40 and $45 a ton.

For telegraph arms there was paid, in thousand lots, almost eighteen cents apiece; for insulators, more than thirty cents apiece; brick was $30 a thousand; rough lumber $40 to $90 a thousand feet; once the timber belt was crossed, ties mounted to $1.25, $2, $4, $6, $8 each!

The Union Pacific suffered likewise by the war prices and by the restrictions of trade, but the Central was peculiarly helpless, for California manufactured no iron and little of anything else. The company always had at least $1,000,000 in material in shipment by the hazardous water route, and sometimes $3,000,000 in transit at one time. Delays were frequent, owing to storm, calm and wreck; the Government commandeered at will for its own use in war exigencies.

That there was extravagance in contracting and purchasing is not to be denied. The accusation is softened by the fact that material had to be ordered a year in advance, and that time soon became of more value

than money. It is not the purpose of this story to revive long-dry controversy. The unquestionable methods, alone, through which with scarcely a break and by dint of courage, will-power and consummate skill in managing men and events the builders of the Far Western link in the first transcontinental railroad earned a goodly measure of what they acquired supply a subject inspiring enough for great American history.

Vice-President Huntington spent his time principally in New York, preparing the way for the bonds of company and Government and turning the credit of himself and associates into gold—without which business could not be done in California. He says that he and the firm of Huntington & Hopkins supplied the company with a large amount of construction money: the firm sometimes taking the company's notes and he himself buying stock and bonds outright. The stock in the beginning was accepted at par, $100; eventually it sank as low as nineteen cents, and went begging at that.

President Stanford obtained loans in San Francisco, pledging therefor his own paper and the paper of Huntington, Hopkins and Charles Crocker. Few capitalists and no bank there would accept the company's bonds, the county bonds were subject to 30 per cent. discount., the Government currency 6s did not appeal; and interest on loans was, as said, 2 per cent. and upward until the Bank of California lowered it to 1 per cent. a month. Under these conditions President Stanford nevertheless furnished collateral sufficient

for the purpose, and so well upheld his credit that from a rating of $100,000 he gained until he was upon the Bank of California's debit ledger in the sum of $1,300,000.

Faith may move mountains, and in the case of the Central Pacific may appear to have overcome mountains; but the abilities of that building coterie in their climb onward and upward rivals the miracle of the loaves and fishes and the widow's cruse. The keystone of their amazing success was faith, perhaps—business faith—and cemented by teamwork and daring.

As previously stated, the first eighteen miles of grading and track-laying had been consigned to Charles Crocker (the " Co." may be omitted as superfluous) as contractor. Samuel S. Montague, selected as chief engineer, succeeding the lamented Judah, might be regarded as an experiment equal to that of the road. He was a young man, without name as a railroad engineer. He proved to be worthy of his trust—" faithful, honest and proficient." He died in 1883, after having served as chief engineer for the Central to that date. Assistants to Mr. Montague were Lewis M. Clement, who went all the way through from Section No. 1 to Promontory; William Hood, who entered the Central Pacific service in 1867 and accompanied the line over the Sierra—and at this writing is chief engineer of the Southern Pacific as successor to Mr. Montague; Butler Ives, S. M. Buck and William Epler, upon divisions in Nevada and Utah; McCloud, Phelps, Haslett, Hutchin-

son—who, like Engineer Ives, are to-day only names, second to the name of Judah himself.

J. H. Strobridge, still living in 1919, became superintendent of construction under Charles Crocker. A. L. Bowsher was foreman of the telegraph crew. Arthur Brown was bridge superintendent, this department including the immense trestles and the miles of snow sheds in the mountains. The roll of the Pacific Railway is a roll of heroes paraded under prosaic titles.

The first eighteen miles had been completed not without difficulties. The tailings from the hydraulic mining up the American River were filling the bed and causing a constant rise of the stream, so that an extremely heavy fill protected by riprapping was necessary to conduct the railroad grade for the three miles across the overflow lands from the Sacramento levée to the river. The piles for the bridge across the American River had to be driven through fifteen to twenty feet of tailings.

The eighteen miles from the levée to connect with the old California Central line at the Junction, present Roseville, was begun in February, 1863, and completed in the early winter. The Crocker contract was for $400,000, $250,000 in cash, the remainder in securities. The final bill amounted to $425,000, allowance being made for extras. The bridge across the American River had cost $100,000. Mr. Crocker says when he started in he had $200,000 in personal assets; that when he finished he was owing money. He had been obliged

to petition the company for an advance payment, in order to satisfy his men. The company was then owing him $48,000. He offered to accept company bonds at fifty cents on the dollar, so that he might be enabled to raise the funds.

Once at Junction, the company "concluded to build up to Newcastle, some 31 miles." Progress was by the hop-along method, while sparring for openings. Public sentiment still was much adverse to the company. Many interests were fighting it. Mr. Crocker literally took off his coat; his eighteen miles had not daunted him, and he prepared to bid for the construction of these next thirteen miles. He was now doggedly heart and soul allied to the Central Pacific project.

Owing to the howl raised against him by other contractors, alleging that he was a favorite with the company, he was awarded only two miles: the hardest two. He took them, and also the risk. The eleven other miles were apportioned among several bidders. The plan did not work out well. Labor was scarce and independent; the contractors outbid each other for men; prices of labor consequently mounted alarmingly; there were strikes, delays and quarrels; eventually the bulk of the thirteen miles fell to Crocker again.

Newcastle was reached in early July, 1864. Here the work stopped. It was a period of discouragement. County bonds were being held up, suits were pending, even labor appeared to regard the company as fair prey as long as it lasted. Grant had been defeated at Cold

Harbor, and gold was quoted at $2.90; currency at thirty-five cents. The board of directors decided that to let the construction by stretches of one or two miles would so disorganize the labor market that the wage scale would prove ruinous.

But in nine miles more the next twenty-mile division would have been completed and the company be entitled to the Government subsidy upon the same; the Act of 1864 provided for a two-thirds subsidy payment upon the graded line in advance of the rails; therefore Charles Crocker was authorized to go ahead, and as far as he could. He went—until, he says, all his money and all his borrowing power were gone, too.

"That was the time when I would have been very glad to take a clean shirt and lose all I had, and quit."

He was not the quitting kind. Neither were the three, his associates. On May 10, 1865, the tracks were into Auburn, five miles from Newcastle; another month and they had arrived at the historic emigrant station of Clipper Gap, seven miles farther, or forty-three miles from Sacramento. They were slowly forging on eastward, to replant the incoming trail of the Forty-niners, as the Union Pacific was destined to replant the kindred, older trail outgoing from the Missouri.

Now forty miles had been completed. The subsidy was long postponed, but the future had brightened. The war in the East had ended satisfactorily to Northern industries and an easier money market might be anticipated. The Act of 1865 had been passed by Congress.

This act, approved March 3, 1865, permitted the companies engaged in the Pacific Railway work to issue their bonds upon 100 miles of their grade, superstructure and so forth for 100 miles in advance of their continuously completed line—thus providing more funds for pressing emergencies.

Such an extension of borrowing power, at this time, vastly strengthened the resources of both companies. From that date the Central people were enabled to employ their bonds in considerable degree, and the road was usually mortgaged for the 100 miles ahead.

All the construction contract from Clipper Gap eastward had by resolution of June 4 been assigned by the directors to Charles Crocker & Co. until new orders. Illinois Town (the Colfax of to-day, as rechristened in honor of Speaker Schuyler Colfax, over whose distinguished presence California made much ado in this summer of 1865), eleven miles distant, beckoned as the next terminal point.

The country ahead had been changing rapidly. From the winding but gradually ascending way the survey was leading into the main foothills of the Sierra. The engineers of the road characterized the route up from Newcastle as one of the most difficult on the line —a fact that may not impinge upon the senses of the modern traveller when he bears in mind the stupendous trestles and hanging-curves of the line beyond.

The company had been a year in getting from Newcastle to Clipper Gap, twelve miles. Part of this time

was credited to delays in marshaling funds and settling the labor question; but although the rise in the twelve miles was only 800 feet, much of the distance demanded sweeping detours and prolonged grades.

Two months conquered the eleven miles to Illinois Town, at an elevation of 2242 feet—a climb of 500 feet from Clipper Gap. Here, on September 10, end o' track rested for 1865. Record for the year, twenty-three miles; not an encouraging record to the public.

The gross earnings for May were reported at $740 a day, gold; for June they had increased to $1080 a day. The passenger rates were ten cents a mile, freight rates fifteen cents a ton per mile; all gold.

Whether or no there was encouragement to be found in these figures as given out, the nation, even California, had not yet awakened to the main truth: that here was a little squad of business soldiers conquering, by physical and mental force combined, the apparently unconquerable.

Dutch Flat, whence the company wagon-road was opened to tap the Placerville-Virginia City stage and freighting road, lay only thirteen miles before. Skeptics in superabundance still asserted—and never more assuredly—that the vaunted Central Pacific of California would reduce to merely the abortive "Dutch Flat and Donner Lake Route"; that, confronted by the snows and gorges of the high Sierra, it would rest content with the traffic diverted by the wagon-road from the Nevada silver fields. Rival interests vigorously circulated the

statement by an engineer of reputation that the further progress of the railroad through the mountains by the Judah survey would require an expenditure of from $250,000 to $300,000 a mile.

The company combated this statement; issued a counter-statement in which it decried the "oft-repeated slander" that the road was designed to be only a feeder, and added, over the signature of President Stanford, that both the Government and company bonds were appreciating since the close of the Rebellion; that few company bonds had yet been offered; and that with the proceeds of the Government bonds and certain loans, and by the privilege of its own first mortgage bonds covering 100 miles in advance, the company "is fully warranted in considering itself able to overcome the Sierras as rapidly as possible, and in undertaking the work beyond."

In mid-August the Speaker Colfax party from the East inspected the line from Sacramento to end o' track at Colfax, and on along the grade almost to the summit. Through Editor Bowles and his *Springfield* (Massachusetts) *Republican,* and Journalist A. D. Richardson, New York *Tribune* man and ex-prisoner of war, the American people were given their first authoritative unbiased tip upon the mighty achievement ever waxing amidst these wild fastnesses.

Heretofore the project, so slowly developing, of the Pacific Railway had been but briefly treated in the National press. California was safe and remote, and

war news held the columns of daily and weekly in stern grip. Truth to say, through several years of actual construction work the Pacific Railway lacked advertising other than that put out by its companies in prospectuses and reports and the financial departments of the public prints.

Editor Bowles, no doubt properly inspired, called attention to the lavish financial backing of the Central Pacific—according to his figures, $6,000,000 in Government, State and company bonds already accrued and none utilized; for the work so far had been accomplished, he understood, by means of the sale of stock, the county subscriptions, and the earnings. Out of this income the company showed $500,000 surplus.

Possibly Mr. Bowles was no financier—his profession did not tend in that direction. Of more worthy reckoning was his exploitation that in its last annual report the company declared it would be into Salt Lake within three years (for Stanford, Huntington and their coöperates had this goal firmly fixed before them); and he recites that the grading crews, mustering 4000 Chinamen, were working twenty-five miles ahead of the rails.

As general construction superintendent Charles Crocker was proving of astonishing mettle. He was "the engine that drove everything ahead," and "from a small dry-goods merchant had rapidly developed into a great organizer and manager."

He had changed and advanced as the character of the work had changed and advanced, from the first

thirty miles in the Sacramento Valley and the short sections over which the sub-contractors had warred by hiring labor away from each other, to the high country, the fuller purse and the need of thousands of hands instead of hundreds.

He solved the labor problem by answering with Chinamen. White labor on the coast was independent to the extreme. Why should an able-bodied man wield subordinate pick and spade at a dollar or two dollars a day when he might earn four dollars a day at the docks and the mines, and in the hills perhaps make his everlasting fortune by a lucky stroke of a tool? The gambling spirit of the Eldoradans was still rampant, kept alive by the Nevada excitements. A trip pass for grading or track-laying duty, to end o' track, was very likely to be but a stepping-stone in a journey to the Comstock, the Washoe and the White Pine lures. The man kept on going.

During the White Pine craze 2000 laborers were shipped across the mountains to Humboldt Wells before a hundred stuck.

Crocker countered upon this tendency when, in the spring, at Auburn, he met a wage-strike among the Irish laborers by directing his construction superintendent, Strobridge, to send down for some Chinamen. They were set at work—much to the disgust of the Irish, who "begged us not to have any Chinamen come." But the Chinamen did so well, and there was such pressure bearing, calling for speed, that to end

the bickering the "big boss," issuing a call for 5000 laborers, repleted the ranks of unenthusiastic Celts by filling up with Mongolians.

In the beginning for $26 a month and keep themselves, later for $30 and later again for $35, they trooped in from Sacramento and San Francisco, in their basket hats, their blue blouses and flapping pantaloons, bringing their scanty outfits, their placid visages and choppy talk, to face heat and cold, storm and toil and American curses, and require only their dollar a day and an infrequent lay-off in tribute to some Joss.

"Crocker's pets" they were styled by the invidious. But despite the hullabaloo levelled against this invasion of "yellow" labor, in the fall of this 1865 Superintendent Crocker had some 3000 of them at work under white bosses, mainly Irish; he was planning to import more, from China itself, when occasion demanded.

Once shown what and how, the Chinaman became an efficient toiler. Hitherto his hard labor had been confined to the mines. He was not an adept with teams, but with pick and spade, basket and wheelbarrow he was as steadily industrious as an ant.

"Quiet, peaceable, industrious and economical—ready and apt to learn all the different kinds of work required in railroad building," and "as efficient as white laborers," was the report by President Stanford. "Without them it would be impossible to complete the western portion of this great National highway within the time required by the acts of Congress."

To the Chinese laborers "Mistuh Clockee" was a general; under the spur of his forceful presence they shuttled back and forth, digged and delved, like thoroughly drilled companies; while to the visitors along the grade the sight of the interminable lines of pigtailed figures, diligently pecking into rock and earth, trundling their wheelbarrows, or the countless groups squatted around their bowls of rice and pork and whatnot, was an unfailing curiosity.

The Central Pacific earnings for 1865 were $405,591.95; the net earnings $282,233.44; by the deduction of $150,000 interest and $105,000 sinking fund, there was left, "carried to profit and loss" (in this case profit), $27,233.44.

The construction work of the year—the twenty-three miles of track-laying and some fifty miles of grading—footed over $3,200,000; the construction to date, from Sacramento up, summed over five and one-half millions; the total cost of the road, over six and one-quarter millions; there were additional assets, county bonds, materials, and accounts, of almost another million. The annual report of this 1865 made a satisfactory showing.

Figures, like the country, were getting large. Having built fifty-four miles, and braved all financial difficulties, the company plunged ahead. It confessed to no fears, it promised to Charles Crocker that all expenses should be met by private means, if necessary; the tide had turned with the definite turning of the

war; securities were rising in market value. Funds were forthcoming. The campaign of Vice-President Huntington in the East, assisted by the brokers Fisk & Hatch, was placing the Government currency bonds and the company bonds there, and even in Europe. Money thus obtained and not directly applied to the construction was loaned out at 1½ and 2 per cent. a month or at a lower annual rate.

Seemingly undismayed or confused by the tangled coil of finance, the company kept its gaze clearly fixed upon its visions, both the practical and the altruistic.

"Many a time," testified Mr. Huntington, "I would have given anybody largely out of the money that I had if they would have taken the work off my hands and assured me that they would have built the road. . . . I have done many things that I did not do for profit. I did them in order that the road should be a success. California was full of people that wanted to come East, including women and children. That point had its weight with us. It is very well to sneer at that, as people of small minds will; but it had its influence on us, and a very large influence. A railroad would give people a means of crossing the continent comfortably in six days and on land, instead of spending twenty to thirty days on the ocean, with all the inconveniences of such a voyage."

And this was true, as Editor Bowles himself pointed out: that the whole Western country was poignant with women, and men also, who had cut loose from home

and home folks, and were held captive behind the bars of the long water and desert trails that lay between the new and the old.

This fall and winter end o' track rested at Colfax, while the grading, trestling, bridging and tunneling were pursued with vigor upon the survey beyond. Three regular trains a day were running between Colfax and Sacramento. Along the grades eastward 5000 men and 600 teams were at work in October. The force increased, until by the end of the year there were 7000 Chinamen, at $30 a month and keep themselves; 2500 white laborers, at $35 a month and board. They were comfortably housed in tents, caves, dugouts and board shacks, and supplied by wagons that bucked the mud and the snows from Colfax, the base.

The distance from Colfax to the summit was some fifty miles; the spectacular engineering and construction feats required, which in the beginning had been faced with the zest of a Judah, now were to tax the skill of Montague and Gray, and summon the indefatigable pluck of Crocker.

Early in the spring, throwing forward one of those high, curving trestles (in this case 1100 feet long) with which the road strode across the deep gorges and ravines, the rails moved out from Colfax for the attack upon the gigantic Cape Horn.

Here a bed had been literally chiselled from the granite slope so sheer that the laborers, yellow and white, were suspended by ropes while they hacked,

drilled and blasted, 2500 feet above the rushing American River. Steadily making height, the iron trail bored on past the storied mining camps of Gold Run, Red Dog, You Bet, Little York, startling the echoes with raucous blasts of the panting iron-train, signalling civilization's advance.

The spring rains fell in floods, the melted snows joined, and all trails were bottomless with miry clay. The stage from Colfax to Virginia City was stuck in the mud of Gold Run's one street for six weeks straight. Passengers were forwarded by saddle, and pack-mules took on the supplies for the Central camps.

In May the track was beating around Cape Horn. On the Fourth of July it was into Dutch Flat, and the first train carried a patriotic excursion to Sacramento. This same day the headings in the Grizzly Hill tunnel, ten miles beyond, and 508 feet long, met—"thus practically refuting the slanders which had been heaped upon the company by its enemies in their oft-repeated declaration that Dutch Flat was to be the terminus of the road."

The work proceeded. At the terminal base there was the supply depot, from which the material should be forwarded. Near end o' track there was the construction camp, for the track-layers, spikers, bolters, and so forth. Attached to two engines, the heavy construction train busily plied back and forth between base and end o' track, with clangor of iron dumping its load of rails and fastenings.

These were transferred to a low push-car and trundled onward by a squad of sweating Chinamen as fast as the rails were partially spiked.

When the iron train had cleared, another construction train might enter, bringing the material for trestles, bridges, culverts, the powder, the scrapers and all, to be hauled forward by teams.

The graders maintained a pace far ahead.

To keep everything moving in a difficult, restricted country Superintendent Crocker needs must infuse his own energy into 10,000 hearts. The trestles must be ready, the fills must be prepared, the bridges waiting, the timbering and masonry and iron must be delivered.

"Why," he dictates for Historian Bancroft, "I used to go up and down that road in my car like a mad bull, stopping along the way wherever there was anything amiss, and raising Old Nick with the boys who were not up to time."

J. H. Strobridge, the superintendent in charge of the field work, lived at end o' track; and with him, from Newcastle clear to the finale at Promontory Point, was his wife—who as the only white woman that saw the thing through from beginning to end earned the title "Heroine of the Central Pacific."

In its march eastward and upward the railroad erected its stations and water-tanks, put in its sidings, founded new towns, established saw-mills for ties and timbers. Eventually there were twenty turning out equipment for it.

As stipulated by the act of Congress, it accompanied its tracks with a telegraph line, upon which the Overland Telegraph Company (virtually the Western Union), put through by James Gamble and Horace Carpentier, superintendent, in four months of 1861, from Placerville to connection at Salt Lake with the Omaha link (the Pacific Telegraph Company of Edward Creighton), already had an eye. The Central's line did little commercial business as yet; it was devoted mainly to dispatching.

Cisco, fifteen miles from Dutch Flat, and of elevation only a scant measure short of 6000 feet, was reached November 24, 1866. The famous Emigrant Gap of the gold-seekers lay eight miles behind. By a tunnel of 300 feet the rails had cleaved the divide down which the emigrant wagons pitched headlong, retarded by ropes and drags, and from the trail of the American River had penetrated to the South Yuba.

From Colfax the road had climbed 3400 feet in twenty-eight miles; of these, 2286 feet had been gained in twenty-three miles. The grades had averaged almost 2 per cent., on ninety-one feet to the mile, and the maximum of 116 feet had been touched for three miles running.

Record for the year 1866: the twenty-eight miles at a construction expense of $8,290,790—the payments, of course, covering considerable grading, grubbing, blasting and bridging in the advance. The total cost of road and equipment for the ninety-two miles, to date

of December 31, was entered at seventeen and three-quarters millions. The earnings, gross and net, of the year, were twice those of 1865.

Cisco, named in honor of John J. Cisco, assistant treasurer of the United States and at this period treasurer of the Union Pacific, was for nine months the terminus of the road while the crowbars and powder of grading crews broke a passage for the rails through the giant crests of the Sierra.

From Cisco the summit was fourteen miles, with a rise of 1131 feet to the highest stake, 7042 feet elevation. At Cisco the snow remained into May; beyond, it gathered twelve to sixty feet deep and the drifts persisted year to year.

The work from Colfax up had been considered as the climax of railroad building; was pronounced as the most difficult known to the world. But from Cisco to the eastward of Donner Lake Nature still sat entrenched twenty-five miles deep, all arrayed to stop the progress of the puny tracks. By reason of impossible canyons, gorges and abrupt pitches ten tunnels were required—one at the Summit, of 1659 feet, almost a third of a mile—in order to bridge grades that otherwise would be beyond the power of any locomotive The emigrant wagon-road might accomplish 400 feet climb to the mile, but a railroad, never. In all, there were fifteen tunnels upon the engineers' maps. Numbers Three and Four, just outside of Cisco, proved among the toughest; granite so hard was encountered that the

shots spurted from the holes as if from a cannon, and left the rock uninjured. Nitroglycerin was manufactured in the camps, but it was more dangerous to the men than to the cliffs.

The winter of 1866–1867 closed in with uncommon severity. Storm succeeded storm, until the snow lay fifteen and eighteen feet on the level and the fall registered forty feet. Throwing its crews well to the front, and calling every available man, now with its 10,000 Mongolians and Caucasians, the company, championed by Charles Crocker, had buckled to its job.

Half the men were engaged in shovelling snow. The ground had to be kept bared for the roadbed; the ballast along the fills had to be kept clear from top to bottom until sheds were erected or drains put in, otherwise the bases of the embankments would settle in the thaws, and grades of 105 and 116 would exceed the limit.

On the right-of-way through the timber the choppers and grubbers worked in snow to their knees and to their waists. An avenue 200 feet wide must be opened and the stumps grubbed by pick and powder to a width of twenty feet. "Those are not Yankee forests," explains Assistant Engineer Clement, "but forests with trees four, six and eight feet in diameter." Three hundred men labored ten days to clear a mile. The cost approached $5000 a mile. Under the giant stumps there were placed two to ten kegs of powder, mingling earth and wood in a black vomit of dust and splinters.

The snows gained upon the shovellers and the scrapers. Cuts were filling—the tunnel men had to excavate through twenty to 100 feet of drift before they reached the face of the cliff; and shut off from the world by these masses of snow they burrowed like gophers, sending to the surface their débris of rock after each round of blasts. The rocks for the retaining walls of culvert and bridge construction were lowered down a shaft of snow to the snow caves below.

It was slow work, trying work, and terrifically expensive work. The grades had to be abandoned; space was becoming congested; in some of the cuts laborers were crowded, thirty teams and 250 men, upon a space within a compass of 250 feet. Only orderly Chinamen could have managed such restrictions.

Transport of supplies by wagons and even by pack trains grew precarious. Crocker shipped a third of the force to the rear, until spring, and concentrated upon the tunnels.

Sheltered inside, the men could keep going all winter. For their sleeping and eating quarters rude cabins were erected. Thus they wintered high up amidst the whitely coated, heavily timbered slopes, clear to the bare vastness of the granite-armored divide.

The Summit tunnel, with its 1659 feet exclusive of approaches, challenged haste; but until it had been opened no Central train might roar across the mighty, long-forbidding ridge and face the expectant East. Engineer Clement, in charge of this division, shortened

FIGHTING THE SIERRA SNOW
Central Pacific R. R., 1866

DUTCH FLAT MINING CAMP, 1865
Just before the Central Pacific built through

time by sinking a shaft at the halfway point. The heading at either end of the tunnel had been started last August; the shaft, bitten out at the rate of seven inches a day, pierced the crown on December 12, on December 19 was deep enough to commence the laterals; thenceforth the Chinamen drilled and blasted both ways from the middle, to meet their fellows boring in from the ends. At that, Summit Tunnel was a year in the making before the headings met.

The powder bill waxed portentous, to $54,000 in a month. The price per keg had risen from the normal two dollars and a half to five dollars; it continued to soar, the Eastern market had been swept bare by the Government arsenal demands following the high tide of war; in the gleaning the figures were boosted to eight and ten, twelve and fifteen dollars a keg; twelve and fifteen kegs were used in a single blast, and the toll reached 500 kegs a day. Daily progress in the headings ranged from nine inches to two and a third feet; in clearing the bottoms, from a foot and a half to five feet.

The blasts shook the solitudes to their foundations. By one volcanic explosion 3000 tons of granite were scattered like shrapnel.

At No. 9 tunnel, by name Donner Peak, the trail down from the camp grew so dangerous on account of snowslides that all work was stopped. Slides carried away camps and crews. In the spring the frozen corpses of laborers were revealed as the snow level lessened—still upright, their tools in their marble hands.

The tracks into Cisco from the west were kept open by a constant procession of snow-plows bucking the drifts with the force of six and twelve engines. Long ox-teams, aided by shovellers, broke the trail as best they might to the camps above; but when nine feet of snow fell in a single storm this was a terrific task. Pack-trains of mules bearing the supplies toiled back and forth, pigmies amidst the white expanse.

As the snow gained and the working space became more crowded, in order to waste no time with idle men Crocker loaded his extra laborers, their tools and supplies, upon ox-sleds; sent them across and down, to prepare the way through the Truckee River canyons near the Nevada line, or twenty-eight miles.

He followed this thrust with a reinforcement of forty miles of track equipment—rails, ties, fastenings, forty freight cars and three locomotives. For the twenty-four miles from Cisco to Donner Lake ox-teams and sleds hauled these tons of freight up to the summit through snow eighteen feet deep on the level, forty and sixty feet deep in the drifts; over and down again to the lower, more open country near the base of the east slope. Here the loads were transferred to wagons and mud-skids and log-rollers for the four miles to the Truckee. No stranger procession ever had traversed the western trails. Unhampered by snow the men might work freely blasting a way in expectancy of the rails.

The Overland Stage line was now connecting with the Central railroad at Cisco; the freight business be-

tween Sacramento and the Nevada mines, by way of Dutch Flat and Cisco both, had developed satisfactorily; but it long had been evident that the company had no notion of stopping at Cisco, or of justifying its title "Dutch Flat and Donner Lake Route" by tapping merely the treasure-house of Nevada.

Nor was it to be content with the 150 miles of leeway beyond the California-Nevada boundary, as granted by the Act of 1865. Projected to pass twenty-one miles north of Virginia City and the Comstock lode, the road had resolved to make the goal of the Salt Lake Valley, 600 miles.

This goal had been in the minds of the Central founders almost from the beginning. As soon as the Union Pacific had been set upon its feet, the Big Four realized the true task before them. Mining booms swelled and burst; Nevada might prove a lucrative feeder, but also a transitory one. Railroads thrive most securely upon agriculture; the Central looked to that and to the long haul. The produce of the Utah beehive awaited outlet.

Vice-President Huntington was not a man adapted to halfway measures. As he had predicted, he very easily wiped from the horizon that obnoxious limitation of the Act of 1865 which would leave the Central stranded in the Nevada desert and at the mercy of the Union Pacific.

"In 1866 I went to Washington," he asserts to Historian Bancroft. "I got a large majority of them

[the votes] without the use of one dollar. We still had our means and wanted to get every vote, so I went into the gallery for votes—one head after another. I examined the face of every man, and I am a good judge of faces. I examined them carefully through my glass. I didn't see but one man I thought would sell his vote."

The result of this Huntington campaign was the Act of 1866, which among other matters amended the Act of 1864 by authorizing the Central Pacific Railroad Company " to locate, construct, and continue their road eastward, in a continuous completed line, until they shall meet and connect with the Union Pacific Railroad."

This success had been anticipated by the engineering department. Three survey parties under Butler Ives, William Epler and S. M. Buck already were in the Nevada and Utah field. As early as the fall of 1863 survey lines had been run clear to the Big Bend of the Humboldt, almost 200 miles east of the California boundary. The Act of 1866 was seized upon immediately. Chief Engineer Montague issued his orders. Mr. Ives, who had been running lines from the Big Bend to the south end of the Salt Lake, was directed to explore for a route to the north end of the lake. In January of the new year 1867 a route was adopted from the Big Bend by way of Humboldt Wells, and thence 230 miles to the mouth of Weber Canyon beyond Ogden. On January 16 the map of the proposed location was forwarded to Washington.

But this was not the end. When spring opened the Epler party faced eastward; passed up through Weber Canyon and Echo Canyon and across the Wasatch and on to Fort Bridger of the eastern slope of the Utah-Wyoming range, setting their flags and stakes beside the flags and stakes of the oncoming Union Pacific engineers.

The Union Pacific, striking a stride of over a mile of track a day, had boasted that it would meet the struggling Central at the California line. That was not to be. Crocker turned loose an army of 11,000 Mongolians, 2500 Caucasians, 1000 teams; he recalled his force from the Upper Truckee into the hills again; with every pick and spade and crowbar and scraper and plow he launched fresh attack upon the tunnels and the grades. The monthly powder bill swelled to more than $64,000.

Of some of the Chinamen he made masons.

"What!" protested the skeptical Strobridge, with all his faith in the yellow toilers. "Make masons out of Chinamen?"

"Sure," replied Crocker. "Didn't they build the Chinese wall, the biggest piece of masonry in the world?"

The Chinamen proved good masons, and good blacksmiths as well.

Sixty feet of snow had to be shovelled by hand out of the winter-locked ravines—"pitched over six or seven times"—to reach the grade. In the blasting a fragment of rock weighing 240 pounds was hurled two-

thirds of a mile across Donner Lake. In August the daylight shone through Summit Tunnel; this midsummer, 1867, the first locomotive crossed the divide, and looked upon gaunt Nevada.

Below, at the Upper Truckee, the tracks were building both ways. In early December they cut the boundary and on December 13 the east-bound construction engine poked its nose across the Nevada line.

At the close of 1867 end o' track had moved onward from Cisco sixteen miles, over the divide and two miles down. In the Truckee region the rails stretched twenty-four miles, or into Nevada. Between end o' track and beginning of track there was a gap of seven miles, in the Donner Lake country, where the surveyed line was so difficult of access, on a 116-foot downgrade, that horses scarcely could keep their footing.

But the engineers, Chief Montague and Colonel Gray, his colleague, declared that the tracks could find their way; the only question was the cost. Cost, at this stage of the game, made no difference. The Union Pacific was already at the Black Hills of present Wyoming, and thus 550 miles upon its march. Its published maps extended its line to the California boundary —it had built 240 miles this year as against the Central's scant forty, was promising 500 miles more and Ogden in 1868; the Central's trackage was not yet complete and continuous; time was worth more than money. Engineer Montague's estimates were approved, and never mind the cost.

Freight and passengers from Nevada and California were transferred across the gap between Truckee and Section 108 above. The rails out of Cisco had been hastily laid, without ballast; when winter settled down this section of the track was abandoned and the transfer lengthened to the twenty-three miles between the Truckee and Cisco.

During the winter the grading was pushed twenty miles into Nevada, or beyond Reno. Early in the spring the mountains behind were again assailed. The whole sixteen miles of abandoned track had to be cleared by hand, for the hard-packed, ice-cemented drifts defied the plows. The steaming Mongolians under their white bosses worked shovelling the thirty-foot accumulation from the ravines in the seven-mile gap. Well nigh the whole force of the Central laborers was engaged in fighting the stubbornly lingering snow. And the Union Pacific was coming on.

In May the Nevada tracks entered Reno. On June 15 the mountain gap had been bridged by the iron rails. Snowsheds had been started to defeat the winter Sierra. Miles of them yet remained to be erected, like the tortoise bridges of Roman shields, before the road could be operated continuously; that lesson, unforeseen by Judah, had been learned. Thirty-seven out of forty miles must be roofed—twenty-three miles in one stretch —at a cost of from $10,000 to $30,000 a mile. But no matter. Time would not bide on these necessities.

The road for the 138 miles across California had

cost $23,650,000 in cash and convertible paper—rather a far reach from Judah's $12,500,000. As convertible, at thirty cents and fifty cents, the paper brought the actual outlay down, however, to some $14,300,000 gold. The total receipts by the road for 1867 had been in excess of $1,400,000, in which over $1,000,000 was from freight, $332,000 from passenger traffic. The net balance to profit, on the books, was $870,000.

The Central girded its loins anew. The sheds could be building. Enormous quantities of iron had been piling up at the Summit awaiting release. Backed by dollars and by energy, and by an abundance of Chinamen (some literally kidnapped at the gangways of the San Francisco steamers), and with 500 tons of iron a day, taxing fifty cars and ten locomotives, pouring down the eastern slopes of the Sierra for the front, the Central again far advanced its docile pioneers and pursuing along the lower Truckee moved upon the Valley of the Humboldt.

V

Progress of the Union Pacific

The Central Pacific had been wielded like a battle-ax; feinting, sparring, then beating down the opposition and cleaving asunder the armor of the heights. The Union Pacific, once adjusted to the grip of its masters, lunged and lunged again with the far reach and the uncanny precision of a rapier.

At the request of the Union Pacific directors Major General Grenville M. Dodge, relieved from army duties upon the plains, on May 1, 1866, became the chief engineer of the road. Since the resignation of Mr. Dey, Colonel Silas Seymour, the consulting engineer, and Mr. Jesse L. Williams, Government director, had continued their professional inspections which had lost to the company an able and a very honest man.

The young General Dodge found the great company apparently well organized and a "going" concern. During 1865 the Crédit Mobilier, formed by stockholders of the Union Pacific, had taken over the contract to build the road to the imaginary 100th meridian, or 247 miles, at the $50,000 a mile.

The "Boston people" had been won. Not long before his tragic death the untiring Lincoln, his mind ever directed upon the nation's future and now already

planning for the onward march of peace, had sought out Oakes Ames, member of Congress from Massachusetts. In Mr. Ames's words, he had said, referring to the Union Pacific Railroad:

"Ames, take hold of this; and if the subsidies provided are not enough to build the road, ask double and you shall have it. That road must be built, and you are the only man to do it; and you take hold of it yourself." And he added, hopefully: "By building the road you will become the remembered man of your generation."

Repeatedly importuned by friends and acquaintances who recognized in Oakes Ames a sterling business man and earnest citizen with means and inclination that would make him the one in a million to promote National enterprises, the Ameses this early fall of 1865 headed a band of capitalists for the relief of the deflated Crédit Mobilier.

This stock company, formed in the spring of 1864 to finance the construction of the road, was stalled on the grade of the Hoxie contract, between Omaha and the 247 mile-post. The new members had infused it with $2,500,000 fresh dollars—the Ames brothers' contribution being one million dollars—and likewise with confidence.

And from this time onward Oakes Ames and Oliver Ames gave themselves to the cause of the transcontinental railway with every financial and moral resource at their disposal. "They were the honestest men that ever lived," declared Broker Pondir, whose knowledge

of men and affairs in the money mart of those days equipped him for such judicial summaries.

In January, 1866, the first terminal base, introductory to the " roaring towns " of other bases to be sown like dragon's teeth amidst the plains and deserts and mountains all the way to Promontory Point, had been located at awakened Frémont, forty-six miles.

In January Colonel Silas Seymour had replied, from New York, to the categorical letter from the Government enquiring just what the Union Pacific comprehended in the term " first-class road," that in his opinion a first-class road meant a first-class road: or, in other words, like the legs of Lincoln's typical man which should be long enough to reach from the body to the ground, a first-class road was a railroad suitable and proper in all respects for the nature and extent of its prospective traffic!

These were the general principles, and, as he pointed out, the five Government directors, the three Government commissioners and the Government stipulations on grades, curves, gauge, and quality of rails seemed to be sufficient safeguards hedging any tendency to skimp.

This much, in his official capacity as the consulting engineer for the company. To be more specific, as a professional man: The locomotives upon a first-class road of ordinary grades should be from twenty-eight to thirty tons, with five-foot drivers, cylinders sixteen by twenty-four inches; the rails should weigh fifty

pounds to the linear yard, and be increased in proportion to the friction entailed by steep grades and heavier engines; the joint fastenings should be either the fish-plate or the wrought-iron chair—the chair being advisable upon the Union Pacific in order to speed the construction; ties, eight feet long, six inches deep and not less than eight inches in the face; the roadbed of proper width and of proper material, and the side-ditches governed by the character of the roadbed.

So much granted, he rather more than intimated that to this extent the Union Pacific was capable of building within the safety limitations, and that the Government, secured by its inspectors, might subordinate its fears to the "vigorous prosecution and speedy completion of the road."

Forty-five of the leading railroad engineers and superintendents of the United States, Canada and England had been invited by the Government Board of Pacific Railway Commissioners and Directors to submit their views "upon a standard to which the Pacific and other railroads in which the Government has an interest shall be made to conform." The somewhat late symposium from meagre contributions by the few who managed to find time and to overstep the ethics of their training did not alter the construction policy of the hastening U. P. or countermand the already large orders for materials.

When in May Chief Engineer Dodge entered upon his duties the grading forces, with their "patent excavators," had been at work since April 11. They had put last touches upon road-bed, masonry and bridges of the first 100 miles and were heading out into the second 100 miles.

The surveying parties were again in the field from Nebraska across into the Utah and Nevada desert—where Engineer Reed had encountered a stretch of sixty miles without fresh water, which prompted him to recommend that in future surveys there camels be employed instead of horses! President Brigham Young, of the Mormon Church (whose not unreasonable anticipation that the Pacific Railway would, of course, open through his capital was to be shattered), had materially assisted the explorations.

By surveys aggregating several thousand miles two important matters had been settled: the first transcontinental railroad was not to strike expectant Denver, and it was not to follow through by the other first transcontinental trail—the Oregon and California Trail.

This great historic thoroughfare, worn smooth by the fur-hunter, the emigrant and the stage, from the main Platte diverged up the North Platte through present Wyoming (approximating the Chicago, Burlington and Quincy tracks of to-day), to Fort Laramie post; thence wended westward to the Sweetwater, and by the famed South Pass of the trappers over into the Valley of the Green, on the western slope of the Conti-

nental Divide. Thence southwest to Fort Bridger of the Wasatch Range and to the Great Salt Lake, the trail of the Mormons and the California gold-seekers trended. The Union Pacific broke another trail that in southern Wyoming short-cut the northern curve formed by the radius of Fort Laramie and the Pass.

To the average mind the old-time Oregon Trail and its wide, open, gradually sloping South Pass appeared a standing invitation for a railroad. But to this day no iron rails have spanned that South Pass, and its services as the gate by which the East sought the West when the West was newest and most difficult have gone unrewarded except in the tributes by historians.

The Union Pacific engineers viewed it, mapped it, estimated its value from all sides. The hard dictates of mathematics eclipsed the glow of romance. True, the pass itself presented no great engineering difficulties; but by all reports the snows and winter storms there would seriously interrupt traffic; having crossed by the detour to the north the railroad would have to drop far south again in order to enter the Salt Lake Valley, thus losing much distance; and there were shorter and more practicable routes direct from the Platte.

Thus the pioneer Oregon Trail onward from the Platte was rejected, much to the astonishment of a public unlearned in railroad engineering.

The sidetracking of Denver was a greater surprise, equalled only by the later word that Salt Lake City also had been declined, with regrets.

Denver was admitted to be of high importance as a traffic point. For three years surveys were prosecuted through the main Rockies west, to find an outlet across. Altitudes of over 11,000 feet, with snow and sharp grades necessitating tunnels from two to six miles long and the expenditure of years and millions in driving them, confronted the plucky engineers—with the alternative of turning directly north again from Denver and repeating the in-route back to the Laramie Plains of present Wyoming.

The eager hopes of Denver went glimmering. It put up a good fight, but its frantic protestations to Washington were overruled by the needs of the hour for a National railroad built rapidly. Rallying from the shock of acute disappointment it began to plan a connection with the main line.

As a final result of the surveys of 1865, a through line, " with actual distances and levels," could now be reported " from Omaha on the Missouri River to Salt Lake City," virtually but not wholly by the Mormon Trail. This proposed line followed up the north side, not the south, of the Platte, and of the South Platte, to Lodge Pole Creek, where previously the Overland Stage road diverged north to Fort Laramie and the South Pass. From here on across the Black Hills spur there was choice of several routes.

These tentative passes, none of which was adopted, would be mentioned only to suggest, as intimated also in the Government directors' report of February, 1866,

the "weighty problems of location that must arise in the proper adjustment of 2000 miles of railroad line traversing a vast mountainous region which, after all the liberal and wisely directed efforts of the Government and its competent corps of topographical engineers, was found, at the commencement of these surveys, in a great measure unexplored."

From Denver north there were 200 miles of mountain chain, ranging from the snowy heights of Berthoud Pass, 11,500 feet (the pass advocated by the Denver enthusiasts) to the 8000-feet elevations of the Black Hills. The three passes proffered by the Black Hills themselves were contained in an extent of almost unknown country 130 miles long.

In the annals of the days a pleasant tale is current to the effect that "old" Jim Bridger, dean of the trapper, trader and Indian-fighter fraternity, was summoned from St. Louis to Denver by the perplexed engineers, in order to get his advice upon crossing the mountains.

Whereupon old Jim, disgusted by an errand so trivial, with a bit of charcoal drew upon a piece of drawing-paper an outline of the range.

"I could have told you fellers all that in St. Louis an' saved you the expense of bringin' me here," he is reputed to have said. "Thar's whar you fellers can cross with your road, an' nowhar else without more diggin' an' cuttin' than you think of."

It is alleged that the map drawn by old Jim was long

preserved among the archives of the Union Pacific. However, it seems to have vanished from mortal ken; and inasmuch as a personal letter from the late General Dodge flatly denies that his aforetime friend and comrade scout ever pointed the way for the U. P.—and inasmuch as the railroad does not cross the main Rockies by any obscure gap but accomplished the feat without much research—the services of old Jim Bridger, in this particular respect, must be accepted as pleasant fiction attached to the romance of those days.

General Dodge did not require this information for his engineers. Out of his own experience in command of the plains military operations he knew—or thought that he knew—of a pass, superior to any detailed in the reports of 1865, from the east to the west; and one of the first things that he did as chief engineer was to direct Engineer James Evans to find it again. The story, to be told presently, rather makes up for the deficiency occasioned by the failure of the Bridger tale.

Upon the map the line of the Union Pacific from Omaha clear to the main range of the Rockies, 700 miles, appears to have been an easy feat. The traveller, whirled smoothly over leagues and leagues of open, apparently level country, is likely to agree with the map. He fails to realize the difference between a road on paper and a road on the ground. And the public, estimating the building progress of the Central Pacific and Union Pacific, at the time fell into the same delusion.

The Central was obliged to overcome 7000 feet of

mountain rise in 100 miles, whereas the Union Pacific had 500 miles in which to overcome a gradual rise of 5000 feet, and fifty miles more of leeway in which to attain the summit of the Black Hills, 2000 feet higher. This appeared slight, compared with the rise of 2000 feet in twenty miles accomplished by the Central.

Viewing the prospect with journalistic eyes while crossing the plains in the spring of 1865, Editor Bowles of the *Springfield Republican* proclaimed that the building of the Union Pacific from Omaha to the Rocky Mountains "is mere baby work."

"Three hundred men will grade it as fast as the iron can be laid. . . . It is a shame all this section is not finished and running already."

And—"From here to Salt Lake, over the Rocky Mountains, there are apparently no greater obstacles to be overcome than your Western Road from Springfield to Albany, the Erie and the Pennsylvania Central, have triumphantly and profitably surmounted."

The worthy Mr. Bowles strayed both ways from the middle. The route up the Platte Valley did indeed proffer a National turnpike—a natural vast onward reach, open, unobstructed by abrupt rises and smooth to the eye uneducated in scientific engineering. Not a paltry three hundred men but an army of three thousand eventually were grading at full speed to keep abreast of the hurrying rails.

The Rocky Mountains were indeed crossed with grades ranging a third less than those employed on the

Erie and the Baltimore and Ohio; but not by the passes that he selected as so practicable—one of them 11,500 feet; no, not even by Jim Bridger's pass, up which his stage horses "trotted with apparent ease."

It is a significant fact that neither the Central Pacific nor the Union Pacific was enabled to take much advantage of the existing stage roads, except in data.

Between the Missouri River and the Salt Lake Valley the best line laid out by the Union Pacific engineers imposed a total climb of 12,100 feet, divided among the plains undulations and the more sweeping gradients of the mountain. In all this the maximum was only ninety feet to the mile, which called for supreme engineering skill over such a stretch of previously unknown country.

It is strange that the lowly Black Hills spur of the Rockies, with elevation of merely some 2000 feet above their base, and with the snowy range of the Wasatch dividing Utah from Wyoming still looming gigantic beyond, should have proved the real stumbling block in the path of empire.

Railroads have in general two methods of crossing mountain ranges. They may follow up the course of streams, or they may follow up the divides between the streams. The Black Hills objected to either method. As Chief Engineer Dodge explained in his reports, the streams there were so canyoned and so tortuous that they forbade the company of the iron rails; and as to the water sheds or divides between, the sedimentary

and the granite rocks met usually at an abrupt pitch of from 500 to 1000 feet, forming an impassable barrier, and challenging even tunnels.

Nevertheless, by the discouraging reports upon the South Pass, to the north, and the snow passes out of Denver, to the south, the middle ground of the Black Hills only remained, and the Black Hills must either be surmounted or removed. That accident of circumstances which so frequently wins battles and alters dynasties and moves at zigzag in its mysterious way made of General Dodge a Judah in the field, and opened the way across the Black Hills after the best engineering science of the keenest ambitious minds had failed.

In the spring of 1865 while returning from the Powder River campaign he had left his column at Lodge Pole Creek, east of the Black Hills range, in order, with a small escort, to explore along the range itself. The Sioux cut him off from the column, and drove him to the vantage ground of a long ridge bisecting the flank of the hill. He and his escort, leading their horses and using their rifles, fought the Indians off, at the same time making what time they might down the ridge in order to signal to the troops on the plains below.

It was almost dusk when the rescuing company arrived. In rejoining the column they all continued down the ridge to the plains.

Then said General Dodge to one of his guides:

"If we save our scalps I believe we have found the crossing of the Black Hills."

He had in mind the railroad; for since 1853 the transcontinental railroad and he had never been divorced, and he was well aware that for two years the engineers of the Union Pacific had been looking for a crossing of the Black Hills.

He marked the foot of the grade by a lone tree; upon assuming the duties of chief engineer, twelve months later, one of the first things that he did was to instruct Assistant Engineer Evans to find Lone Tree Pass and run a line up the ridge.

The result was the establishment of a ninety-foot grade, extending almost unbroken from near present Cheyenne to the flat atop the Black Hills, whence Engineer Evans might gaze over and down to the great Laramie Plains in the beckoning west. As Lone Tree Pass it had been designated; as Evans Pass it was renamed at once—soon to be permanently entitled Sherman Summit in honor of the man who, receding from his former position, was proving to be one of the stanch supporters of the road.

The discovery of this easy pass solved a vexatious problem, although it was only one pass, and first of several, and the unknown Red Desert, the fastnesses of the Rockies, the Utah desert still lay before in an ever-extending array.

As Oakes Ames says, in reference to only the six hundred and sixty-seven miles of construction which in 1867 he personally assumed:

"To undertake the construction of a railroad, at

any price, for a distance of nearly seven hundred miles in a desert and unexplored country, its line crossing three mountain ranges at the highest elevations yet attempted on this continent, extending through a country swarming with hostile Indians, by whom locating engineers and conductors of construction trains were repeatedly killed and scalped at their work; upon a route destitute of water, except as supplied by water-trains, hauled from one to one hundred and fifty miles, to thousands of men and animals engaged in construction; the immense mass of material, iron, ties, lumber, provisions and supplies necessary to be transported from five hundred to fifteen hundred miles—I admit might well, in the light of subsequent history and the mutations of opinion, be regarded as the freak of a madman if it did not challenge the recognition of a higher motive."

The location problems were not the only ones. The Union Pacific was like a cantilever bridge begun in mid-stream and teetering out through vacancy for a farther bank. It commenced nowhere; it reached forward without visible support and where it would end was uncertain.

Its line of communication with supplies already was tenuous, and in its progress of a thousand miles would grow more tenuous. The Central Pacific began with its base at tidewater, and at the wharves of a thriving town. The Union Pacific's base was at the west or frontier side of the unbridged Missouri, upon

which navigation was practicable scarcely more than three months in the year, between freshet and low water. The nearest delivery of supplies was at St. Louis; thence they must be transported by steamboat up-river 300 miles; or at the end of the railroad then building across Iowa—the Chicago and Northwestern being distant over 100 miles. From end of railroad transportation was by wagon to the Missouri, and by ferry to the Omaha side.

It had in contemplation over 6,000,000 ties, over 300,000 tons of iron rails. Clear to the Black Hills, 540 miles, there was no large timber except cottonwood —and cottonwood would rot out in two or three years unless treated by the zinc process. Some cedar was available, in doubtful quality and at high prices. Oak ties needs must be contracted for by quantity as far east as Pennsylvania and New York; by the time they were delivered at Omaha they would cost $3.50 each.

The iron, shipped by rail and boat, rose to $138 a ton. The company had purposed to build its own cars at the Omaha shops, but the locomotives purchased in the East lacked only a margin of the long freight haul to make them equal in price to the Central locomotives. Beyond Omaha there were no settlements of any size, no industries, no produce save the scant supplies of hay cut by a few ranches and usually contracted for by the army and the freighting outfits. Fuel wood was $100 a cord, grain $7 a bushel, hay cut from the bottoms $34 a ton, on the plains line of the Union Pacific.

Ties, iron, feed, bridge timbering, provisions—all material must be brought from Omaha on a single track and without delays and without interrupting local traffic. Verily, the Union Pacific of the Pacific Railway was built from one end.

The red warriors on the buffalo range vastly increased the difficulties. For the three years of building across the plains from Omaha to the Rockies they bitterly fought the road, impeding it at almost every mile. It proved to be a trail far eclipsing in danger the Wilderness Road blazed by Daniel Boone and his thirty into Central Kentucky. The wooded paths of the Ohio Valley when the fierce Shawnees and Wyandots lurked for the invading Long Knives were not so bloody as this iron trail piercing the country of the Cheyennes and the Sioux. Surveyors worked under military escort —they were attacked, and they died beside their transits and their stakes; graders digged and delved after they had stacked their guns within instant reach—and they, too, died upon their picks and shovels. Construction trains and way freights were derailed or stormed by bullet and arrow. The boldest assault of all occurred, not in the initiatory days but in 1867, only a few miles west of old Fort Kearney, and between established nations.

However, in 1866 the Civil War had ended; the ranks of North and South had been mustered out. Omaha was doubling in population—this year 630 new buildings were erected. Labor was plentiful, and so

were fighting men in army shirts and trousers. The meagre force of 200 graders, a sprinkling of horses and oxen and two excavating machines with which the road had started in the fall of 1864 soon had been quadrupled and was working over 200 miles in advance of the track.

This spring and summer the chief engineer travelled over the line in person as far as the east slope of the main Rockies; he was accompanied by Consulting Engineer Seymour, Government Director Jesse Williams and Geologist David Van Lennep. Mr. Van Lennep made critical examinations for coal (a very necessary article), iron, and formations that would supply building stone and ballast.

Under the increase of labor and of efficient organization the rails leaped ahead. Editor Bowles's dictum that such road building was mere "baby work" seemed accurate.

The track early passed Columbus, ninety miles out of Omaha—Columbus, George Francis Train's pet, by him and its hopeful citizens pictured as the population centre of the United States, and the future National capital. Issuing from glad Columbus, which began to move its houses from the ferry crossing of the Platte to the depot, the rails spanned the Loup River by means of an iron bridge 1500 feet long, and headed into the 400 miles of plains, treeless except for the stream courses and practically without a human habitation upon the survey line.

And after the 400 miles of plains there waited, darkly brooding, the desolate Black Hills—the first timber, the first fuel either coal or wood in any quantity; and after that the waterless, trailless, immutable Wyoming basin intervened before the next supply country, that of the wooded Wasatch might be reached.

By the middle of September 180 miles of track had been laid in the five months—an average of over a mile a day. The first division point had been established at the German settlement of Grand Island (which had to be moved across the Platte), and end o' track was twenty-five miles beyond old Kearney stage and emigrant junction, on the opposite side of the river.

The Government acts required that the first 100 miles of road be completed by June 27, this year. A company circular had promised that the Marathon should be opened to the public on July 4. Not only was the promise fulfilled but there was no resting upon oars.

The famed 100th meridian, signalized by a lettered arch, at 247 miles, was attained on October 5—October 15 the first Great Pacific Railroad excursion started from New York and gathering momentum along the way, arrived at Omaha for inspection to the meridian. But while the company had been journeying by rail and boat and stage, lo and behold, the magic railroad had grown another link, like a jointed serpent; so that the delighted excursionists needs must pursue end o' track an added thirty-two miles before they overtook it.

The construction year of 1866 closed upon Decem-

ber 11 with the astounding record of 260 miles of track laid in exactly eight months—still an average of more than a mile to a working day. The Central end o' track and terminal base were in the Sierra snows of bustling Cisco, ninety-two miles. The Union Pacific terminal base was at "roaring" North Platte (a genii city upsprung over night) of the dun plains, 293 miles, and its end o' track was at the 305 post, twelve miles farther. Truly, the dusty, rusty cowhide brogans of the sweating, swearing toilers with tools and arms had betaken to themselves the proclivities of the seven-league boots.

No such railroad building ever had been dreamed of. The Atlantic portions of the Pacific Railway now formed the longest air-line route in the world; it stretched straightaway over the heaving surface of the astonished plains. Pointing west, it was to be the shortest route to the Orient.

Statisticians grew busy, drawing their figures of probable traffic from shipping lists, insurance companies, and the plains and mountain overland trade. Three hundred thousand passengers annually carried from coast to coast at $150 each: $45,000,000. Three hundred thousand tons of freight at $1 a cubic foot or $34 a ton: $10,200,000. Gross receipts, to the through line, $55,200,000—from which the Union Pacific would net $15,000,000 as its share.

"We leave this estimate on record," says Commissioner of Statistics for the State of Ohio, Hon. E. D.

Mansfield, "as a moderate (not an exaggerated) view of the business and profits which may be fairly expected from the Grand Pacific Railroad."

The $15,000,000 net earnings were a long time in coming; the figures of the statisticians ran true to form, but the worthy gentlemen did not take into consideration the various dark horses—the Canadian Pacific, the Northern Pacific, the Kansas Pacific to Denver, the Santa Fé, and later roads—that entered the transcontinental race and divided the purse.

The construction and equipment to the 100th meridian footed over $13,000,000; to the end o' track, sixty miles beyond, totalled some $16,000,000. The Crédit Mobilier had financed the greater portion.

The road was being operated by the contractors, pending acceptance by Government and company. This winter Chief Engineer Dodge prepared for another dash. New Fort Sanders, figured as 288 miles distant across the Black Hills of the "Dakota" Wyoming and at the south end of the Laramie Plains, was his objective. He announced his plan in a letter to his firm friend and believer, General Sherman. General Sherman replied, from St. Louis, date of January:

"I have just read with intense interest your letter of the 14th. Although you wanted me to keep it to myself, I believe you will sanction my sending it to General Grant for his individual perusal, to be returned to me. It is almost a miracle to grasp your proposition to finish to Fort Sanders this year, but you have

done so much that I mistrust my own judgment and accept yours."

General Dodge merited the confidence. Events were shaping in favor of the rapid work contemplated. The Chicago and Northwestern Railroad across Iowa was connecting with Council Bluffs opposite Omaha. There soon would be all-rail communication from the bank of the Missouri River with the iron and tie supplies of the East. Work upon the bridge was in prospect; the company had hopes that the bridge would be completed and opened to traffic by the end of the year!

The surveying parties who had been called into headquarters for a winter's revision of their notes hustled out from Omaha for the Indian country in the first week of March. They were snowbound at North Platte terminus and beyond, and delayed for six weeks in their field work. The parties that had wintered at Salt Lake left there April 1.

The surveys of the mountain and desert region had scarcely commenced when Assistant Engineer L. L. Hills was killed by the Indians six miles east of present Cheyenne. It was to be a bad year in the field: young Percy Browne would run his last line, and the Thomas Bates men would almost lose their lives to desert thirst. Graders and train crews also were to suffer from arrow and bullet and knife.

Final locations had to be consummated through the most difficult portion of the projected route: from the high plains of southeastern Wyoming, at that time

Nebraska Territory; over the Black Hills of the Laramie Plains, the Red Desert and the Bitter Creek Region, over the Wasatch and to the Salt Lake; for the graders were pressing after the survey stakes and the rails were to clang at their heels.

Alarmed by the reports from the Indian country, in June General Dodge hastened forward. Seventy miles of track already had been laid in two months. The terminus base was at new Julesburg, "red-hot" new Julesburg, "wickedest city in America," 377 miles from Omaha, across the Platte from the old Overland stage station of the same name at the Upper California crossing of the older Oregon Trail.

A distinguished party accompanied General Dodge upon his inspection tour of the fighting advance. From Omaha, as his guests, Brigadier and Brevet Major General John A. Rawlins, chief-of-staff to General Grant, destined to be Secretary of War for six months of 1869 and then dying in office—and now, this June of 1867, afflicted with tuberculosis and added to the party at the personal request of Grant in the hopes that the trip would benefit his health; his aide-de-camp, Major William McKee Dunn, captain in the Twenty-first Infantry; General Rawlin's guest, John F. Corwith, of Galena, Illinois; young John Duff, Jr., of Boston, son of Director John R. Duff; a Mr. Rogers, who appears not to have gone through; Engineer Jacob Blickensderfer, Jr., of the engineering corps (ten years later chief engineer of the U. P.), who had been depu-

tized by President Andrew Johnson to determine the true eastern base of the Rocky Mountain, whereat the Union Pacific would begin to draw its $48,000 a mile of Government subsidy for 150 miles onward; Government Director T. J. Carter, Geologist David Van Lennep, and Consulting Engineer Silas Seymour, of New York, who would assist Mr. Blickensderfer in determining the foot of the Rockies. Division Chief James Evans also went out; by reason of his accurate work the Dodge pass over the Black Hills had been named Evans Pass, and he was the man to help his chief now to establish the final location line. There were several surveyors, as reinforcement to the Indian-harassed field parties.

The little company was joined, *en route,* by two companies of the Second Cavalry, from Fort McPherson on the Platte, commanded by Captain (brevet Lieutenant Colonel) J. K. Mizner and First Lieutenant James N. Wheelan, with Surgeon Henry B. Terry, Department Quartermaster General William Myers, and a wagon train.

At Julesburg, end o' track, Construction Superintendent Sam Reed and General Jack Casement, track contractor, were added.

June 28 the expedition moved westward out of turbulent Julesburg by easy marches to accommodate the strength of General Rawlins. At Crow Creek, 140 miles, the site of the next division point was denoted, and named Cheyenne. The Fourth of July was spent

here; General Rawlins delivered a patriotic speech to the party and to the detachment of General C. C. Augur, commanding the Department of the Platte. General Augur had come down from old Fort Laramie to meet the Dodge column and designate a new military post at the selected division point. This was named Fort D. A. Russell, in memory of Major General David Allen Russell, of Mexican War and Civil War service.

Cheyenne, boasting at the outset one cabin erected by a trader, speedily boasted a graveyard also. While the combined engineering and military columns were encamped here the Cheyennes and Sioux attacked an east-bound Mormon grader outfit just to the south. The train was rescued none too soon; the Indians were put to flight by the cavalry, General Rawlins and the tenderfoot Easterners gained a knowledge of this kind of fighting, and two graders were left underground—the nucleus of a graveyard where many another man was buried with his boots on.

The Dodge exploration this summer extended across the Black Hills by way of Sherman Summit up through the length, 150 miles, of the Laramie Plains, through the desert beyond (where another division point, the future town of Rawlins, was located, where Division Chief Percy Browne's party, disorganized by two Indian attacks, was re-formed, and the Tom Bates half-dead party was succored), across the Wasatch Range to Salt Lake City, and by northward circle to the Wind River and the Sweetwater country of the

South Pass back to the outgoing trail in the Bitter Creek Desert again.

General Rawlins and the two civilian Easterners enjoyed the experience thoroughly. The general bore an enthusiastic report to General Grant upon the heroic duties performed by the surveyors, laborers and all. He had had a first-hand experience.

Meanwhile, along grade and track there were booming days and nights. The company was taking the operation from the contractors. In the far East Oakes Ames, of the Crédit Mobilier, had engaged to construct the road for 667 miles west from the 247 mile-post at the 100th meridian. The sum agreed upon aggregated $47,000,000, comprised of sections of 100 miles at $42,000, $45,000, $80,000, $90,000 and $96,000 a mile, with 6 per cent. of the sidings and equipment to the amount of $7500 a mile where required.

Oakes Ames personally assumed this financial task. From the 100th meridian the country was stigmatized as the "rainless belt"; the lands thence onward were considered worthless and the company stock and securities flattened alarmingly. Ames agreed to see to it that the track was built and to take payment in company securities at par; his the risk to place them at a profit or at a loss; his desire, he says, "to connect my name conspicuously with the greatest public work of the present century."

It was "by no means strange that my credit with conservative financiers like Governor Washburn [Gen-

eral C. C. Washburn, at that time congressman from Wisconsin, and in 1872 governor of the State] should have been shaken, and that he should have hastened to call in loans which, in his judgment, this contract proved to be in unsafe hands."

The 667 miles would carry the road across the Black Hills, across the great basin of the Red Desert and Bitter Creek country, to the Wasatch slope, short of the Salt Lake by but little more than 100 miles. The contract covered all the difficult line. It gave a distinct impetus to the unflagging activities from Omaha to the uttermost location stakes and vastly relieved the fears of the stockholders. To that there was added the cheering report from the front, where the eastern base of the Rocky Mountains had been established as beginning just west of Cheyenne.

The grade to Cheyenne was not exceeding thirty-five feet to the mile; from Cheyenne, 6000 feet elevation, the road would climb to Sherman Summit of Evans Pass, thirty-two miles, elevation 8262 by the engineers' figures, on an easy grade not exceeding ninety feet; and down by open country and on through the rolling Laramie Plains would draw Government and company bonds of the $96,000 a mile. Evans Pass over the bugbear of the Black Hills was a natural highway, long waiting for the transcontinental rails.

Coal beds had offered themselves to answer the fuel problem. Tie and bridge timber, and mountain streams down which they might be floated from the winter and

summer camps to the line itself, bided in the frowning heights north and south and west. Upon the Black Hills the grading would provide perfect ballast of disintegrated granite.

By the middle of August end o' track was out from Omaha 430 miles; the grade had been opened 100 miles before. The 125 miles of track had been laid in four months, despite a start hampered by a late spring and a progress impeded by successive freshets of the Missouri River that imposed an annoying barrier between the Nebraska and Iowa shores. Even in July great stores of iron and ties and other supplies were heaped up opposite Omaha awaiting ferriage. Out upon the rolling plains the march of the tracks was regulated only by the delivery of the material means.

Therefore the march had been spasmodic, but also spectacular. The grading gangs, flung forward 200 miles in advance, numbered 3500 men; the track construction crews numbered 450; the operating train force numbered 300. Nine saw-mills and several steamboats were owned by the company. For sixty miles below Omaha and 100 miles above the banks of the Missouri River were being stripped of timber. Tie camps to employ thousands of choppers were being planned for the mountains. A machine shop costing $20,000 had been opened at North Platte, in addition to the $250,000 shops at Omaha; the company was prepared to turn out twenty cars a week and take care of all its locomotives.

Already world's records in track construction had been broken by the march of two and one-half miles in one day and 150 miles in 100 consecutive days. The East was awakening to the significance of the hail in the corridors of her hotels as the omnibuses clattered up: "Passengers for the Pacific Railroad!" Interested travellers began to flock by Northwestern railroad and by ferry and 'bus into "Train Town," the Union Pacific suburb of Omaha, to view the miracle being achieved beyond where the sun sank in a Brierstadt canvas. The eager newspaper correspondent was out there, his pencil poised, his eyes roving, his ears thirsty.

They all witnessed little General "Jack" Casement, "champion tracklayer of the continent," hard at work—ever at the fore, driving his doughty $2.50-a-day Irish, he as scrappy as the best of them. His was the contract for laying the track (1000 miles eventually became his stint) and he took over part of the grading as well when the section contractors failed in their jobs.

It was a sight surprising. The snaky, undulating double row of glistening rails stretching on, on, on, into the west; the side-tracks filled with supply trains bearing hundreds of tons of iron and thousands of ties; the last terminal base, brimming with riotous life, grotesque with makeshift shacks and portable buildings, amidst which Casement Brothers' huge take-down warehouse with dining-room loomed portentous; then out to end o' track, a route impeded every few miles by more construction trains awaiting their turn; and at end o'

track the boarding-train for the track gangs, of dining-cars, bunk-cars, the combined kitchen, stores-car and office-car, each eighty feet long, with beds made up atop and hammocks slung to braces and trucks underneath; the dusty line of wagons toiling still on and on, bearing ties, hay, what-not, up the interminable grade; on the grade, ant-like figures, delving, plowing, scraping, cursing; beside the grade, the "grader's forts"—of dug-outs half beneath ground, roofed maybe with sheet-iron, sheltering two or four or six men apiece in time of Indian attack. The same kind of hut was used in the Wilderness and before Vicksburg.

The boarding-train was shoved up-track by the engine at its rear. The first construction train pulled in, halted noisily, and dumped its thunderous load. The construction train backed out; the boarding-train pulled out to clear the way for the charge of the iron-truck hauled by rope and galloping horse with a shrieking urchin astride. Forty rails were tossed aboard; the iron-truck rumbled full speed to end o' track, passing another truck, tipped aside to give it right of way. The rail squads, five men to a squad, were waiting on right and left; two rails were simultaneously plucked free, to the truck's rollers, and hand after hand were run out to the ties. "Down!" signalled the squad bosses, almost in one voice. The end of each rail was forced into its chair. The chief spiker was ready; the gauger stooped; the sledges clanged—and another pair of rails had been set and the truck rolled forward over the pre-

ceding pair, interrupting the busy hands of the bolters.

Thirty seconds to each pair of rails; two rail lengths to the minute, three blows to each spike, ten spikes to a rail, 400 rails and 4000 spikes and 12,000 blows to a mile. To every mile some 2500 ties—say 2400 at the outset, 2650 on the grades—at $2.50 each, delivered. The roadbed is ever calling for more and more; the six- and eight-horse or mule teams toil on from end o' track with spoils from the immense tie-piles; in the mountains, the tie camps are heaping others by the thousands.

The magnitude and precision of the undertaking awed beholders. The system reminded of the resistless march of the military ants of South America, or of a column of troops occupying a country. While in a June afternoon the correspondent for the Cincinnati *Gazette* gazed entranced, from one o'clock to four a mile and 200 feet of track was laid. During the sixty-mile run from North Platte the iron road had lengthened by another mile. This day there were over two miles of rails placed, ready for engine and cars.

And military the work was, in its organization. The officials were generals, colonels, majors, by actual rank; captains, lieutenants, sergeants, corporals and privates, ex-bluecoats and "Galvanized Yanks" labored with transit, rod, chain, pick and bar and spade and sledge. General Casement's track train "could arm a thousand men at a word; and from him, as a head, down to his chief spiker it could be commanded by experienced officers of every rank, from general to

WESTWARD ACROSS THE PLAINS, 1866
An excellent sketch of the Union Pacific R. R. in construction through Nebraska
Pawnees on guard.
From Richardson's "Beyond the Mississippi"

DEFENDING THE RAILS, 1867
By Courtesy Union Pacific System

captain," who had served five years at the front. At a Plum Creek fracas the year before, General Dodge himself led twenty train-men, strangers to him, to the rescue. " I gave the order to deploy as skirmishers, and at the command they went forward as steadily and in as good order as we have seen old soldiers climb the face of Kenesaw under fire."

End o' track thrust forward, mile after mile, lunging farther and farther. The telegraph line kept pace with it; and all along the Platte there was presented the oddity of a telegraph line paralleling the river on either side, the Pacific or Overland line on the south, the Union Pacific railroad line on the north. The Ben Holladay stage line shortened: to Kearney, to North Platte, to Julesburg, and presently, in November, to Cheyenne, for the run to Denver, only 112 miles. The day of the Overland Stage on the plains was rapidly drawing to a close. Stages would still be necessary, but not for the long haul of 1900 miles between the Missouri River and California.

On November 13 the tracks entered Cheyenne. The first passenger train from the East followed the next day. The " Magic City of the Plains " had swarmed to the welcome with banners, a brass band and speeches. President Sidney Dillon, of the Crédit Mobilier, and Champion Track-Layer Jack Casement replied. All Julesburg moved up to the new terminal, leaving a station house and a litter of cans to mark the site of a five-months' town, faded in a night.

Five hundred and seventeen miles from Omaha! Eighty-seven miles of track laid in the three months. Cheyenne was to be an important point as the junction for Denver, from which the Denver Pacific was soon to build northward. Sidings and switches had to be put in. It was a week before the main track again attacked the impatient grade. The real ascent of the Black Hills beckoned only fifteen miles below; to the summit was fifteen miles farther; then Fort Sanders, the goal of the year, waited only twenty odd miles over and down.

But winter closed in early. They did not make it. The accepted Evans location line to the summit was vetoed, upon advice of Consulting Engineer Seymour, and this New York interference stopped the rails. December caught them amidst cuts and curves at 8000 feet, high up on the pass, and end o' track halted short of the coveted summit by ten miles, and of Sanders, the 570 mile-post, thirty miles.

The march of 1867, 240 miles; but well won.

The year's record of the Central was perused with interest. To the brag of the Union Pacific company that it would reach the California border before the Central reached the Nevada border, Superintendent Charles Crocker now responded with the promise: "A mile a day for every working day in 1868."

This stung. From Sherman Summit the Salt Lake Valley itself was distant some 500 miles of desert and mountains. The Central Pacific had yet to build some 600, mainly a straightaway across the desert. Its

mountains lay behind; they and winter had been conquered: the Union Pacific's mountain work in the snowy ranges lay ahead; the race looked to be in favor of the Central.

Another matter also caused keen anxiety. That was the Mormon question. The Union Pacific surveys west of the Rocky Mountains had definitely decided that a route south of the Salt Lake, by way of Salt Lake City, and on up into the Humboldt country for the California border, was impracticable. True enough the Overland Stage ran by this route from the lake, and there was a great desire, of course, to enter the Mormon capital. But, although a number of surveys had covered the south end of the lake and beyond, the figures were altogether opposed by engineering judgment; whereas the one line projected north of the lake worked out perfectly.

Brigham Young naturally would fight the decision with his whole united people. He ruled in Utah; his was the rich storehouse of produce, the only one in the seventeen hundred miles between the Missouri and the Sierra. To the road which bent for his capital he would contribute the aid of all his moral power and all his material resources. Thus he could make or break. Opposed by him, a railroad would have a slow journey through his Territory.

It was well known to the Union Pacific that the Central engineers, Clement and Ives, had been instructed to run through surveys at the south and north

ends of the lake. The filing of the Central's engineering report was awaited with exceeding apprehension. President Young already had announced that he stood prepared to furnish labor that would grade 200 miles east and west of the lake.

When the Central's report was filed the Union Pacific heaved a great sigh of relief. The Central's engineers were even stronger than the Union Pacific engineers in recommending the route by the north end of the lake.

President Young personally thundered at General Dodge in the Tabernacle. A protest from the Mormon church and Utah had gone forward to Washington. The Utah citizens had been prohibited from aiding the Union Pacific; they had been instructed to support the Central. As late as June of this year 1868 a mass-meeting was held in the Tabernacle to take measures to secure the transcontinental line for Salt Lake City, which had been one of the prime movers in the enterprise. But when both roads, to their credit, stood firmly upon the recommendations of the engineers; and when the Government accepted the Central as well as the Union Pacific lines as plotted on the map, President Young swallowed his disappointment with as good grace as possible for any man, demonstrated his thrifty nature by making what profits he might for his church and people out of the grading and the supplies, and threw his forces into promoting the progress of the iron trail. In fact, had it not been for the Mormon

graders the Union Pacific would have been beaten into Ogden by the Central.

This winter General Dodge was called to New York for a conference of the heads of departments and the company officers. He received directions to start out at the earliest practicable moment and push the rails forward with all speed, regardless of expense. Time, time, time—that was the issue. Ogden must be won, and there still was the opportunity of striking so far toward the California border that when the two roads met the Union Pacific would control the traffic, and the Central Company would be shut out from the Salt Lake Valley.

During the winter immense quantities of material and stores were accumulated at Cheyenne, the terminus. Tons upon tons of iron flowed in; the ties stacked high; the Casement Brothers' warehouse bulged with stuff. In the Black Hills 1000 men worked, cutting timber for other ties and for bridges, to be floated to the grade down the spring streams. A call for labor was sent out; an army of 10,000 Irish graders and track-layers gathered in Cheyenne; every train disgorged its rough-and-ready gangs. The surveyors were told to be prepared to set forth before spring opened. Four hundred and eighty miles of track, from Sherman to Ogden, were to be laid without a halt, and the location lines were to be run from Ogden to California, 600 miles farther, in readiness for the grade.

The construction and equipment of the road to the

close of 1867 approached $30,000,000 for the 540 miles of track. The net earnings for the year figured at $2,061,000, a good proportion of this being the haulage of material and men for the contractors. Nevertheless the commercial business apart from the reduced-rates business was estimated at four times the operating expenses. *Harper's Weekly* was predicting that in a short time " the demands of trade will call for a second track, to be used exclusively as a freight road, over which an endless line of slowly-moving vans shall continuously pass, leaving the other track for the use of impatient passengers only."

The price of rails delivered at Omaha had dropped from $135 a ton to $97.50 a ton. The rolling stock comprised fifty-three locomotives, nine first-class passenger cars and four second-class passenger cars—three of the former and all the latter having been built at the Omaha shops; and over 800 freight cars.

There should not be omitted " one officers' car," presumably the " Lincoln " car purchased from the Government last year; and " one president's car," being a brand-new creation in the ingenious George Pullman's best style, quite after the Vice-President Durant special taste.

The road had been accepted within seven miles of Cheyenne. Civilization had followed end o' track, for beside the road through the Episcopal diocese of Nebraska alone " fourteen new churches had already been built in as many towns."

VI

The Race to the Finish

The Union Pacific tracks rested upon Sherman Summit 540 miles out of Omaha; the grade, a broken line of reddish earthworks, extended thirty-five miles farther, down to the next base, Laramie City, three miles north of Fort Sanders. The survey of the engineers led on into the Laramie Plains; but here and on the high plateau of the bare divide west (the real Continental Divide, although lower than Sherman Summit) and in the mystic Red Basin and the drear Bitter Creek country the Indians had cut wide gaps in the explorer's trails. Thence across the snowy Wasatch Range to Ogden, and into the vast Great Basin of an ancient western sea—the Utah and Nevada deserts—the surveys were only tentative.

The company instructions to Chief Engineer Dodge bade him locate the line to Green River, 300 miles, by June 1; to the Salt Lake by fall, and before winter to have developed it west of the lake. He decided that this development should comprise actual location to Humboldt Wells, 220 miles beyond Ogden. In all, the location work mapped out by his plans summed over 700 miles of line in eight months.

Again the railroad was to part company with the stage, which had pursued it up the Platte and had

jumped across country to meet it at Cheyenne. From the Laramie Plains the Overland Stage swung southward to the foothills that bordered the southern rim of the Red Basin and the Bitter Creek desert, for no horses could be expected to travel in harness amidst the desolate, bone-dry or poison-water expanse of this age-cursed mid-region—a region into which, as the trapper legend read, a jack-rabbit had to carry a canteen and haversack. But the transcontinental iron trail was plotted to traverse this flat, withered bosom of Nature, and by a short cut avoid the grades and the washes of the hills.

In order, as he had promised, to strain every nerve to get the location work so far advanced in the spring as to be far out of reach of the construction corps, the chief engineer issued early marching orders to the survey crews.

By date of February 1 Jacob Blickensderfer, Jr., received his instructions as chief of the Utah division to proceed into the field "at the earliest practicable moment"—if possible, to begin location work March 1. With his party he left Omaha on February 26, crossed the Wasatch by sleds in snow above the tops of the telegraph poles, and arrived March 5.

James A. Evans was appointed chief of the Laramie Division, to complete the location surveys from Laramie to the Green River and connect with the Blickensderfer men working east from the Salt Lake Valley.

The spring was backward; the surveying parties

fought snow and storm, lost animals and wagon equipment, and almost lost lives.

At the last of April Vice-President Durant sent new and startling word to Chief Engineer Dodge, then in the field himself.

The company desired "to cover the road with men from Green River to Salt Lake within one month, and to Humboldt Wells in three!" That called for a location of the 700 miles by August—a job of eight months, short time at the best, concentrated into four and made final.

The echoes of the thundering construction trains of the oncoming Central Pacific in western Nevada had reached the watchful ears of the Union Pacific New York office at 20 Nassau Street; bonds, Government and company, to the sum of $64,000 to the mile of track; land to the sum of 12,800 acres to each mile of track, had been hung up as a glittering prize of competition. General Dodge delivered his opinion that the rush of construction work to Ogden could cost an extra $10,000,000; the company told him to go ahead on that understanding, and never mind. The Crédit Mobilier, backed by Oakes Ames, was listed to strain every nerve, as the engineers were straining every nerve; it had tottered before this; the race was to break Oakes Ames and imperil his great factory, now turning out 120,000 dozens of shovels a year, and swapping them for rails and ties and human sweat.

"Go ahead. The work shall not stop even if it takes

the shovel shop," was his encouragement to the pioneers.

"We do not take our hand off the throttle night or day until we know the front is supplied," was the slogan of the operating department, whose devotion kept the material moving.

There was to be no rest, summer or winter, on the long road to Ogden; neither heat nor cold, rain nor snow, level nor mountain, should halt the march of the rails, if muscle and steam and human will might open the way. Chief Dodge, astonished but not appalled, rearranged his parties as best he might, caught them by telegraph and messenger wherever he could, threw all his available force into the stretch of 400 miles between Green River of Wyoming and Humboldt Wells of Nevada. The Evans survey from Laramie to the Green was almost completed, and the construction crews were free to press forward where the rows of stakes jutted, pin-heads in the immutable Red Desert.

Preliminary lines were hardened into location lines. The best trail over the Wasatch was accepted, as endorsed by the lines already run eastward by the Central engineers. In his report to the company Chief Engineer Montague called attention to the fact that the Union Pacific adopted the Central surveys. Be that as it may, an engineer in the field is an engineer, and mathematics are mathematics. The entrance to Ogden by way of Echo Canyon and Weber Canyon proved to be the most feasible way. The surveyors and their chiefs worked feverishly. There was little oppor-

tunity for revision or back-tracking. It is remarkable that such work stood the test of time, but it has been little altered.

"I do not hesitate to say that over half the number of miles of line was never located before in the same time by the same force—especially when it is remembered that the line between Green River and Salt Lake [the mountain portion] was difficult, requiring long and careful study," declared General Dodge. "In Eastern States, with the same force, it would have been considered a quick location if made inside of a year."

The actual work of the surveyors far outstripped the preparations of the grading contractors; outstripped the preparations of the Mormons on the spot. When General Dodge passed over the line in July and August he found the grading camps idle, waiting on tools and supplies. By this time the engineering forces were running their lines from Ogden westward and from Humboldt Wells eastward.

The Green River-Ogden division had been virtually completed. The project of crossing the northern arm of the Great Salt Lake (prophecy of that miracle of the Lucin Cutoff) had been abandoned, after numerous soundings and tabulations. The road must detour from Ogden to the north of the lake, and scale the abrupt Promontory Ridge. Beyond was that washboard, mud-lake basin, worthless as land but still yielding the mileage subsidy reward of $64,000, and guaranteeing the mastery of the haul from coast to coast.

The anvil chorus of sledges was ringing again across the leagues between the foothills of the Sierra and the Black Hills. On April 1, while yet the ground was frozen too hard for the picks of the graders, the Union Pacific construction army had sallied from winter quarters in Cheyenne. At his office 1400 miles away ("probably the finest in New York, beautiful with paintings and statuary, and enlivened with the singing of birds," as admiring visitors related), Vice-President Durant sat as generalissimo over the advance of 12,000 toiling men. At the front General Jack Casement, another Crocker, raged by car and horse and foot up and down the earnest line, denouncing everything but work, work, work. At the base of supplies the Casement brothers' warehouse launched a constant stream of material and Dan Casement taxed the capacity of eighty-foot freight-cars and six-horse teams.

The Crédit Mobilier Company, borrowing funds and hypothecating securities, lashed by interest payments rising to $500,000 a month, urged haste and ever haste to the meeting of the tracks and the winning of the gamble against time. Each added mile at the subsidy allowance was looked upon as eventual reimbursement for the excessive outlay upon the construction to Cheyenne.

Owing to the lateness of the spring end o' track was a month in reaching Laramie, "Gem City of the Plains," at the 573 mile-post, twenty-three miles from Sherman Summit crest. But even at this a mile a day

had been accomplished. The rails shot forward for another leg northwest through the easy Laramie Plains, favorite of the hunters white and red. The antelope fled from the clangor of the iron and the puffing of the engines.

In two months the terminus had moved at a stride 120 miles farther, and founded Benton. Here on the eastern edge of the Red Desert a sprawling dust-coated town of 3000 thirsty haphazard people up-sprang, mushroom, in a fortnight, and hauled water three miles from the North Platte. The first frost of autumn seemed to wither it, and before snow it had vanished utterly.

For end o' track had again launched itself into the horizon. Two miles a day had been the clip from Laramie. Now the graders were working for 250 miles in advance, distributed along the more difficult stretches clear into the mountains. There were 10,000 of them, with 500 teams. From five to twenty miles ahead of the track the bridge and culvert gangs labored. At end o' track General Jack Casement was using the energies of 1000 track-layers and 100 teams. The supply teams, 300 and 400, plodded back and forth along the grade; the desert dust, red with the pulverized granite, white with soda and alkali, and blue with the fumes of the Irish dudeens, hung in a line 100 miles long. The racked desert gazed in wonder.

Eastward stretched the connecting link of rails, attentuated to 700, 800 and finally 1000 miles. The construction trains, relaying the ammunition trans-

ported from the far Missouri River, puffed in and out, pressing to the very pilot of the boarding-train and dumping their welcomed loads. Forty carloads of material to the mile was demanded, by single track from terminus, and by single track from Omaha itself. It was a feat. Never was such assault carried on with communication so slender.

To the south might be glimpsed the dust from the overland stages at the base of the Medicine Bow range. That marked the old. In the desert had been born the new, with the shriek of the hurrying passenger trains dooming the old to ages that had passed.

In the mountains themselves, to the south and to the west, the timber camps, employing crews of number unknown, under small contractors hacked and sawed and hewed, turning out ties and bridge timber; and these poured in a torrent down the mountain streams or by trails upon creaking wagons to meet the grade. Ties were costing, delivered, $1.20 each, in summer.

The Casement brothers' track-laying contract read: $800 a mile for anything less than two miles a day; for over two miles a day, $1200 a mile; for delays consequent upon an unfinished grade, $3000 a day. It is little marvel that the work speeded up; but the track gangs and the grader gangs were upon their mettle also.

Laborers were drawing $3 a day. They were Irish, almost to a man; a fighting breed drawn from the East and by lure of good wages and steady work from the mining camps and the border towns of north and

south. To be sure, 300 negroes had been employed and gave satisfaction. But the Union Pacific was built by the Irish.

The Central had a working force equal in point of numbers, not equal in stamina. 'Twas the boast of the U. P. men that one Irishman was worth three Chinamen. No better stuff could have been found for the Casement command with which to fight not only grim, relentless nature, but thirst, heat, cold, fatigue, and the scalping knife. All that the Irish asked was their pay and a boss who dealt no favors. Good stuff, yes; and tough stuff, of the knock-down-and-get-up type.

In burning August the rails had swept across the Red Desert; they climbed the broad, bare plateau of the Continental Divide at 7164 feet, and charged on into the alkali dust of the Bitter Creek basin, abhorred by overland travellers. Throughout 100 miles the water was poison rank with salt and alkali and scum, or altogether lacking. It foamed in the engine boilers and ate the stomachs of the men. Grading camps were taking what they could get, in barrels hauled by wagon and sixes from two to ten miles; when it arrived it was brackish. Tank trains plied between end o' track and the last passable supply. There was no halt yet to bore wells and erect wind-mills.

September 20 the track was at the 820 mile-post; the Bitter Creek desolation had been flung to the rear. One hundred and twenty miles again in two months—but two months of such work that the half has never yet

been told. The average of two miles a day does not spell the answer that the graders and the track-layers delivered to the challenge of the deserts. For 630 miles, General Dodge remarks, the Union Pacific was built with no material at hand to aid it except the earth. Onward, even the earth proved antagonistic.

The two-miles-a-day gait had not been constant. Disposing of his 500 tons and 600 tons daily tossed at his feet as a tribute from the hands upon the throttle and the nervous figures bent over office desks, General Jack shoved his track into the very midst of the graders. He caught them, and while angrily tugging at his russet beard he drew his $3000 a day and waited. Then with a spurt he bridged the newly filled gap in the roadbed and tore on. Three miles in a day, four miles in a day, five miles in a day—he knew no limit except as grade and material failed.

The press and people of the East were awakening to the miracle of railroad building being enacted in the West. The front pages of the metropolitan papers—the *Tribune* of Chicago and the exultant Greeley's great *Tribune* of New York—the papers of Boston and Cincinnati and Washington—displayed the bulletin, in each issue: "One and nine-tenths miles of track laid yesterday on the Union Pacific Railroad"; "Two miles of track laid yesterday on the Union Pacific Railroad"; "Two and three-quarters miles of track laid yesterday on the Union Pacific Railroad."

It was good advertising, and true. The travelling

GRADING OUTFITS GOING TO THE FORE, UNION PACIFIC RAILWAY, 1867
By Courtesy of Union Pacific System

public flocked to see. They came and applauded. The summer and fall of this year was a new pilgrim season, with end o' track as the Mecca.

"It was worth the dust, the heat, the cinders, the hurrying ride day and night, the fatigue and the exposure, to see with one's own eyes this second grand 'March to the Sea.' Sherman with his victorious legions sweeping from Atlanta to Savannah was a spectacle less glorious than this army of men marching on foot from Omaha to Sacramento, subduing unknown wildernesses, scaling unknown mountains, surmounting untried obstacles, and binding across the broad breast of America the iron emblem of modern progress and civilization."

The New York *Sun, Tribune, Express, Times, Evening Mail,* the *Observer,* the *Christian Advocate,* the *Scientific American;* the Boston *Transcript, Journal, Traveller, Advertiser, Post,* the *Congregationalist;* the Philadelphia *Press, Inquirer, Age, Bulletin, North American;* the Pittsburgh *Chronicle,* the Cincinnati *Enquirer* and *Commercial,* the Baltimore *American,* the Chicago *Journal of Commerce*—they and another hastened to gain first-hand information of the campaign now in full swing to cleave a way into the Golden West.

This July General Grant himself, lately acting Secretary of War and now the unanimously nominated Republican candidate for the Presidency, had come out, accompanied by a distinguished retinue—Generals Sher-

man, Sheridan, Dent, Harney, August Kautz, Company Vice-President Durant, Director Sidney Dillon, and so forth. They made headquarters at Sanders, and were heartily hailed by all the old soldiers along the line as they proceeded by the special train to end o' track.

And still other visitors there were: sportsmen and civilian and army friends of General Casement and General Dodge. They lodged at end o' track and in the graders' camps beyond, and in the tie camps of the mountains.

The Union Pacific crews were in close rivalry with the Central crews; the Overland telegraph wires connected, and flashed news between the East and West, between New York and Placerville and Sacramento. From the Overland wires it might be relayed to the company's wires.

In defiance of the Central's best endeavors the Casement track gang laid six miles of track in one day from rise to set of sun. The Central accepted the gage, and "Crocker's pets" retorted with seven miles. General Casement and his rugged Irish laughed. They had other tricks up their sleeve.

"No damned Chinamen can beat me laying rails," said Jack Casement.

At Granger, in late October, General Casement had as his camp guests General J. M. Corse, of Iowa; Edward Creighton, of Omaha, who had strung the Pacific telegraph with as much expedition as the Union Pacific tracks were being laid, and others. It had been

a gala night—there are reports which state that the doughty little general himself was rather the worse for wear in the morning; and on this day the "Casement tarriers" were booked to step on the tails of the Central Chinks.

Before the eyes of the guests seven and a half miles of track, less a few rail-lengths, were put down before the bosses finally bawled, "Lay off!" In the dusk the men quit, well satisfied. General Casement vowed that the next stint should be eight miles, if Crocker did not cry enough.

Crocker replied: "The Central promises ten miles in one working day." And he added, to himself: "But we will take our time to it."

When Vice-President Durant received the word off the wire, at New York, he was prompt to call:

"Ten thousand dollars that you can't do it before witnesses."

"We'll notify you," Crocker answered coolly.

Green River, by first company orders only the engineering goal for June, had been left as a division station of the completed road in September; the pace set from the 820 mile-post had been over two miles a day, including the idle Sundays. To the "roaring" terminal base town of Bryan, thirteen and one-half miles farther, was the matter of a short week; and out of Granger, sixteen miles beyond, the track had leaped almost eight miles at a bound into the Utah Territory of 1868.

Little time was being spent in ballasting the ties.

They were laid upon the clods turned by the graders' plows and picks, and the rails passed over. Scant attention was being paid to whether or no the rail joints measured with the ties, or hung between. No masonry was attempted; wood hewn to stock measure was quicker for trestles, drains and abutments. The sting of winter was in the frosty nights, and the first snows were whitening the crest of the Wasatch, before. As Government Director Jesse Williams, himself an engineer, pointed out: "The first object in railroad construction is, very properly, to lay the rails," so as to provide for the transportation of material.

This was being done in the race to daunt the threatening voice of time with the staccato of the sledges.

The Overland Stage road still wended in the south. The venerable Colonel "Dick" Carter, courtly Virginian, in vain had tried to have the iron trail follow through by way of his suzerainty of old Bridger's Fort. Deaf to his solicitations, the rails swept by eleven miles north, and dropped him his station of Carter as a memento. The company orders had bade the engineers run their lines according to the best engineering judgment, regardless of cost or of solicitations. Having declined Denver and Salt Lake, the tracks turned Bridger's Overland post down also. Even Bridger's Pass was deemed unavailable.

At Piedmont the rails were atop the Uintah chain of the northern Wasatch; and here squatted the great stacks of ties, floated down the streams and gathered at

Tie Siding; ninety cents to $1.20 apiece, but with an overhead to the contractors for hauling.

The Oakes Ames $47,000,000 contract in behalf of the Crédit Mobilier had ended—and the Crédit Mobilier and Oakes Ames were almost ended, too.

Halfway between Carter and Piedmont General Dodge took charge of the contracts, for the company. Relief for General Casement likewise was close at hand. On the long trail out from the Laramie Plains numerous of the sub-contractors had fallen under the pressure of their grading jobs. Time and again the Casement reserves had been hustled forward to fill the gaps. But now, replacing the plains and desert ditty:

Drill, my paddies, drill!
Drill, you tarriers, drill!
Oh, it's work all day,
No sugar in your tay—
Workin' on th' U. Pay Ra-ailway!

a new chantey was reverberating amidst the granite walls before:

At the head of great Echo the railway's begun,
The Mormons are cutting and grading like fun;
They say they'll stick to it until it's complete—
When friends and relations they're hoping to meet.

Hurrah, hurrah, the railroad's begun,
Three cheers for the contractor; his name's Brigham Young.
Hurrah, hurrah, we're honest and true,
And if we stick to it, it's bound to go through.

Now there's Mr. Reed, he's a gentleman too—
He knows very well what the Mormons can do.
He knows they will earn every cent of their pay,
And are just the right boys to construct a railway.

Solicited by the popular superintendent, Sam Reed, and encouraged by the mandate of President Brigham Young, the sturdy Utah men and boys had flocked with pick and spade and wheelbarrow and cart to open the grade from the Wasatch into the Promised Land. President Young himself, of business tendencies, had taken the major contract, at $2,000,000, to grade from the head of Echo Canyon 120 miles to Promontory Summit. At the completion of the road the company owed him $1,000,000. He gained a settlement (after his manner in such things) by direct appeal to New York and acceptance, as part payment, of $600,000 in left-over equipment, for his Utah Central Railroad.

Swarming to the summons of bishop sub-contractors, the workers, old and young, of the thrifty Beehive community lay to. With $10 a day and keep for man and ox-team, with man and boy power ranging to $3 and more a day, with hay at $100 a ton and potatoes $7 a bushel, and nothing small despised, Utah, long shut off from the world, reaped a golden harvest.

As an Ogden veteran of the day states: "It was there that I laid the foundation for a competency."

All in all, the Mormon grades carried the Union Pacific through the last 150 miles, and got it to Promontory in time.

At Aspen, the 937 mile-post, nine and one-half miles beyond Piedmont, the rails were again high in air: 7540 feet, an elevation second only to Sherman Summit of the Black Hills.

It was late November. Upon the heights winter was marshaling its snow and cold as an army of occupation. The advance already had possessed the weighted pines and denuded the feebler aspens; the grade was beleaguered by ambush—the white-clad soldiers had arrived in millions. In close touch with the stage once more, the rails plunged down for the Wasatch passes, thirty miles before; struck the Bear River and waiting Bear River City, of unsavory reputation; crossed on a trestle 600 feet long, advanced through the Wasatch pass, 1000 feet lower than Aspen, toiled through the Evanston coal depot (named for James Evans, late division engineer), where the snow was climbing for the eaves of the clustered shacks and staggering on, hard beset, with the end of the year established winter terminus at the rude haven of Wasatch, 966 miles from Omaha and a mile and a quarter in air.

Track record of the eight months, 425 miles and 100 miles of sidings. Track accepted, 940 miles out of the 966. Operating expenses, a jump from $1,400,000 to $4,160,000 out of $5,062,000 earnings. The year's construction account, $56,290,000; the $10,000,000 chargeable to rush had been absorbed. Ogden was sixty-five miles. The Central——?

Charles Crocker had made good his promise of a

mile a day. Three hundred and sixty-three miles was the record of the Central; its end o' track was now 245 miles west of Ogden, only twenty-five miles short of that U. P. goal of Humboldt Wells, and still coming amidst the snowless desert. Its graders had far passed the U. P. graders, desperately advanced 220 miles beyond Ogden to claim the right of way; they were forging for Promontory and Ogden, and threatening the passes of the Wasatch, where the C. P. engineers had set the line stakes.

When at the close of 1867 the Central Pacific track had crossed the California-Nevada line, and the spring energies were to be centred upon the Donner Gap of seven miles behind, the construction firm of Charles Crocker was exhausted financially, if not physically. The outlay and difficulties had been extraordinary.

The Contract and Finance Company had come to the rescue. Emulating the example of the Union Pacific's Crédit Mobilier, it had been organized and duly incorporated by the four builders and Edwin B. Crocker, the road's attorney, to carry on the construction work. From New York Vice-President Collis P. Huntington telegraphed his famous dispatch to his representative, "Uncle" Mark Hopkins, regarding the stock: "Take as little as you can and as much as you must."

The new company engaged to build and equip the road from the State line through to the Salt Lake for $43,000 a mile cash and an equal payment in Central

stock. At the completion of the line the four principals held some $52,000,000 in company stock and had assumed between three and four millions of company debt. But the road was there.

From the State border at Camp 24 to Ogden was 600 miles. On May 1 the Central tracks entered Reno, sixteen miles. From a population of two men, one woman, three pigs and a cow Reno expanded to fill thirty new buildings in a week. The Jonah's gourd miracle of the eastern plains and deserts was being repeated here upon the far western deserts; but the Central had not struck its stride for the year.

"A mile a day in the desert," had been Superintendent Crocker's pronunciamento.

"Durant has started for the Pacific Ocean. We'll strain every nerve to get into Salt Lake and secure a portion of the business," had asserted Mr. Huntington.

The company had about the same force as when in the mountains; the 10,000 Chinese laborers and mechanics, the 2000 whites, mainly Irish. In early July the tracks issued from the lush Truckee Meadows (that welcome resting-spot of the desert-worn overlanders) by way of the lower Truckee Canyon, on July 9 crossed the Truckee, and a mile beyond founded Wadsworth, thirty-five miles from Reno.

The horses and mules had cropped the last green grass that they would see, save at the borders of the stagnant sinks and the infrequent springs, for 100 miles. From here eastward stretched the alkali Nevada

Desert, and then the Utah Desert: all a rock-ribbed, stinking-lake, bitter-shrub region, with the main water supply that of the deceitful Humboldt, and with only the emigrant stations in all the 500 miles of route between the Truckee and the Salt Lake.

The Chinamen called for soldiers: Indians lurked yonder in the solemn vista of shimmering soda and isolated peaks, white labor of Nevada was rising against the invasion by the yellow. Such rumors tried the hearts of the chattering Mongolian phalanx. At the request of the governor of Nevada the scouting cavalry came. But the Indian scare died, the white militants were left behind; "Crocker's pets" shuffled on with pick and shovel, sledge and rail.

Crocker himself called for material and set himself to the desert job. From the survey word had returned of difficult country ahead. At the Humboldt there awaited three canyons. He loaded 3000 graders into wagons and sent them forward 250 miles, with 400 animals, to dig and blast through the Palisades.

Fifteen-Mile Canyon was graded in six weeks. Five-Mile Canyon was graded in three weeks. Twelve-Mile Canyon, 800 feet deep, through which no hoof nor sole had ever pressed, likewise was open and ready when the rails arrived.

President Stanford crossed to Salt Lake City by stage and contracted with the Brigham Young legion to lend their aid. Work was begun to grade 160 miles west from Ogden and meet the incoming rails. A car-

load of tools was forwarded, at thirteen cents a pound, from end o' track by freighter outfits to Salt Lake, and thence at two cents a pound north to the line of grade.

Across the desert to the Palisades toiled the long, dusty files of supply wagons drawn by panting, stumbling mules; from Union Pacific terminus, 400 miles in the east, there rolled into the Salt Lake Valley countless sacks of Iowa corn for the famished nags of the Central's Utah section. The Utah native oats were fourteen cents a pound; $6 a pound was paid for the native hay; water was being piped eight miles and hauled eighty-four miles; while in between the Palisades and the westward-working grade at Ogden, Union Pacific stakes up-jutted and the Union Pacific Irish had penetrated to Humboldt Wells.

Crocker had called for material. The East was being combed to answer him. Thirty vessels at one time were *en route* from New York bearing the precious iron. The ties, redwood, pine and cedar, were flowing down the slopes of the Sierra. The desert country furnished nothing. For 500 miles there was not a tree of size sufficient to make a board, nor a stone that could be used in a permanent foundation. The fuel timber did not exceed a few cords of scrub pine and juniper.

The Central, pushing northward through a drear land uninhabited and apparently uninhabitable, had entirely cut loose from its base. But the 500 and 600 tons of ammunition a day needs must keep up with the onward march. The price of ties mounted from two to

eight dollars each, for quick delivery by skid-way and wagon and steam from parent trees felled, some of them 600 miles to rear. Speed was the word.

So the slumberous Nevada desert, hitherto disturbed only by the emigrants upon the Humboldt trail through its middle and the stages across its south, witnessed an awakening sight akin to the sight at the same time disturbing the solitudes of the Wyoming basins.

Here advanced the army of a new race. First the pioneers, the sappers, opening the way with the oldest civilization extant—the patient Orient, directed by the Occident. Then followed the army of conquest, white and yellow mingled, conducted by the masterful Caucasian with all the energies of a world before unknown and unsuspected. And California, thoroughly aroused to the full import of that unwonted stir just beyond her borders, delegated her scouts to see and glorify.

From his end o' track headquarters of travelling office, storeroom, bunk-cars, dining-car and repair-shops, at dawn each morning Superintendent Strobridge sent forth his orders for the day. The thin air was blue with the wood smoke from the track-force tents and shacks where the mess cooks prepared the breakfasts. The assistant superintendents and chief bosses galloped hither-thither, arraying the men. The movable blacksmith shop and the accompanying harness shop opened for the day to perform their never-ended tasks of hammering, rasping, cutting, stitching. Behind, until merged in the purple distance, stretched the

long double line of rails, and the equally long single line of poles strung with the wire which at the fore dropped sharply from the last pole into the telegraph office of the camp train. Into the brightening eastern sky ran the low ridge of freshly upturned desert soil, a waiting trail, with myriad blue-bloused figures squatting around their camp-fires beside its course.

The supply train, a double-header of twenty or thirty cars, was close at the tail of the camp train. The work of the day began promptly at sunrise. The iron and ties were unloaded upon wagons, which hauled them around the camp train, to be reloaded upon the trucks drawn by horses. The coolies grabbed the ties, dropped them seven to the rail-length; the rail gangs dropped the rails, the spike men, bolt men and fastener men ran, distributing their booty, the spikers and bolters sprang with sledges and wrenches. The truck moved on until emptied, when it was thrown upon its side and the fresh truck passed.

On the right, the telegraph poles kept pace, and from the wire wagon the wire unreeled. In the telegraph office of the camp train the sounder clicked, signalling for more, more, and ever more.

All this system differed little from the Union Pacific system, except that the murmur of the Chinamen was a contrast to the jovial quip and banter and the hearty language of the exuberant Irish in the east.

Only every other tie was placed for the rails; but a follow-up gang pursued, inserting the odd ties. The

camp train regularly cut down the distance for the following supply train; brought dinner at noon, and at evening moved in to its station at end o' track with supper and to connect to the telegraph.

Thus, out of the first thirty-five miles of arid desert, paralleling the California emigrant trail but separated from it by the river, from the sinks of the Carson and of the Humboldt the Central Pacific marched up the south side of the crooked, tantalizing Humboldt and sowed the desert as it went. Fungus growths, strangely named, flourished in its wake; Oreanà, Winnemucca, Golconda, Shoshone, Beowawe, Cluro—where descending the massy Cortez Range the exhausted emigrants rested in the meadow bottoms for the travail westward to the Land of Gold.

The hurrying tracks crossed the river; the Palisades gateway through the barring lava walls was ready and opened. From the Palisades' three canyons the rails emerged to establish Carlin as division headquarters.

Date, December 20; march from the California border, upwards of 300 miles; from Sacramento, the base of supplies, 444 miles, of which 330 had been accepted; distance from Ogden, 300 miles. The iron trail again thrust forward, whipping like a lash laid along the tortuous river; founded Elko, the desert prospectors' base for the White Pine treasure-house of the cunning Paiutes; and at end of the year was within quick striking distance of that Humboldt Wells emigrant station which the Union Pacific had vainly claimed for outpost.

BUILDING THROUGH THE FOREST
Central Pacific R. R., Sierra Nevada Mountains, 1864

BUILDING THE TELEGRAPH LINE
Central Pacific R. R., Humboldt Desert, 1868

The year's record, 363 miles of track; construction expense, $22,350,000; net earnings increased from $1,055,000 to $1,271,700; operating expenses increased from $378,600 to $680,900. Rails were down to $75 the ton delivered at Sacramento, but locomotives were being entered at $11,000 each, passenger cars at $3500, flat-cars at $600.

Between the Central end o' track and the Union Pacific end o' track there intervened 300 miles of desert and mountain and valley unoccupied save by the rival graders now competing, west-bound and east-bound, side by side. But from Humboldt Wells the Union Pacific tracks were separated by 275 miles; they would never make it. The Central might cover its space in a fortnight—and race in for the Salt Lake Valley, to meet not alone the Union Pacific but its own oncoming grade from Ogden. Once around the East Humboldt Range at Wells, and there was open going to the Promontory Range north of the Salt Lake.

The Central construction corps saw its opportunity and made the most of it. It had the advantage of position; it held the comparatively snowless lowlands while the Union Pacific was battling with the timbered heights. The nights were cold—the graders blasted the frozen earth like granite; the winter winds blew fiercely; but the track advanced. It leaped to the coveted Wells; the brogans of the laborers and the hoofs of the gaunt horses were crushing the location stakes of the Union Pacific surveyors. From here onward to Ogden

was debated ground. In the estimation of Assistant Engineer Lewis Clement, the U. P. engineers had run the better line—but a line was not a track.

The Central had builded well, with an eye to the ultimate tussle. From rear the supplies streamed in steady current. Twenty-three miles, thirteen of them continuous, out of a final thirty-seven at a cost of $2,000,000 across the summit of the Sierra Nevada were being protected by snow-sheds and galleries; 2500 men and six construction trains were fighting snow, to keep the road open and cheer on the front 600 miles eastward with the long convoys of ammunition. For if the line of communication failed, the Crocker army in mid-desert was lost. The Sierra line was blocked only two weeks.

Now surrounded in the Wasatch, there upon the high divide between the waters of the Bear and the Weber, almost at the Promised Land but not quite, the Union Pacific was experiencing all the rigors of the Central's Sierra without the Central's prevision. Winter enfolded deep and deeper, burying shack and tent and grade; behind, 200 miles of track at a time were put out of commission when the blizzards swept the Laramie Plains; for weeks at a time neither supplies nor material moved forward; during three months the construction force fought doggedly, cut off, and tortured by the delays and by the thought that the Central was forging on.

The work continued. Those were the orders: work

all winter, as all summer and fall. Thaws succeeded freezes, but the snow had gathered twenty feet, and the grade, shovelled partially bare, was a white-walled galley. To descend from the divide into Echo Canyon, a tunnel of 770 feet, approached by two lofty trestles of 230 feet and 450 feet, was necessary, or the grade would touch the 116-foot limit. The hard-frozen red clay and sandstone required nitroglycerin, and called for an expense of $3.50 a yard. But Dodge, Casement, Assistant Superintendent James Evans, and all, could not wait upon the tunnel.

By a zigzag temporary route named the "Z," of ten miles, the track circumvented the tunnel, and thus material was shunted down. The rails could not wait for the clearing of the grade either; they were laid upon the ice and glaring snow—a whole train, from engine to caboose, slid sidewise into the canyon's bottom, carrying with it iron and ties.

The tracks sought the canyon bottom; and here the mushy ground yielded until crowbars were used to steady the superstructure while the construction train crept over.

The track-men stuck, but they demanded $3.50 a day; so did the company graders; they got it. Sunday was forgotten, except in doubled price. The Mormon workers at $5 a day to man and team required their $10 on Sunday. It was given, and earned. Where subcontractors dodged the spring-sinks and the heavy cuts, Casement flung his tireless Irish into the breach.

Vice-President Huntington of the Central rode through by stage and rail. He witnessed the struggle —perhaps grimly smiled, for he knew the Sierra of California and the Wasatch both.

"I met some teams with ties in the Wasatch Mountains and I asked what the price was. They said $1.75 each. They had seven ties on the wagon. I asked where they were hauled from, and they said from a certain canyon. They said it took three days to get a load up to the top of the Wasatch Mountains and get back to their work. I asked them what they had a day for their teams, and they said $10. This would make the cost of each tie more than $6. I passed back that way in the night in January, and I saw a large fire burning near the Wasatch summit, and I stopped to look at it. They had, I think, from twenty to twenty-five ties burning. They said it was so fearfully cold they could not stand it without having a fire to warm themselves."

This winter contest, waged unrelaxing and after the *mêlée* of summer and fall, brought another extra expense of $10,000,000 to top the $15,600,000 of the last contract.

"No one can obtain at this time an intelligent idea of the difficulties met with and overcome; to appreciate them one had to be present and witness the work," asserted General Dodge in his closing report. And he supplemented, later, in the simply spoken words: "Men who went out in the morning with overcoats on, and

would have to work with overcoats on all day, were not able to do very large days' works."

The spectacular defile of Echo Canyon was put behind; in late January the first engine roared past the lone pine, within the portals of Weber Canyon, which displayed the rudely lettered sign "1000 Miles." One thousand miles from Omaha—hooray!

But this was no token of breathing-spot. From Ogden the affable Superintendent Sam Reed, in charge of the work west, had launched the grading column for Humboldt Wells, 220 miles, and was dispatching material for eighty miles of track to be built eastward from the Wells; the Mormon gangs were attacking the grade to Promontory Point; and along this grade the rails from Ogden should hasten westward before the Central might drive the spikes in its own gap.

And sudden alarm spurred. From New York Vice-President Huntington had sent word back to his Central not to be concerned over the presence of the Union Pacific people in the Humboldt Valley—to come right on as fast as possible, "and leave a good road behind." Forthwith, up Weber Canyon and up Echo Canyon there were strung the Central's Mormons to grade upon the Central survey; and in Washington there was filed the Central's map, claiming the right of way to the head of Echo, and the advance bonds upon this sixty miles! The smartness of the great Huntington must be acknowledged.

It did not matter that the Central track was still

100 miles west of Ogden, and that the Union Pacific with only twenty-five miles to go, had virtually won the race into the Salt Lake Valley. On the last day of President Johnson's administration the bonds, in amount of $1,333,000, were issued; but on the same day, March 3, the U. P. rails entered Ogden.

Beginning at eleven o'clock in the morning, from hill and housetop and upper-story window the glad town watched the engine-smoke, rising like a signal of succor for a hard-put garrison. And indeed Utah had been sorely isolated through many years.

"About 2:30 p. m. they [the track-layers] steamed into Ogden." Flags waved, the military brass band blared, the Captain Wadsworth artillery boomed, and a parade bore the banner: "Hail to the highway of nations! Utah bids you welcome."

For some months the American press and people had been speculating upon the final outcome of this frantic scrambling race westward and eastward, that seemed to regard neither men nor money, except in bulk. And this February the Secretary of the Interior, replying to a query from the House, had sought to solve the problem by suggesting: "The point of junction has been assumed to be 78.295 miles east of Salt Lake City, or at a point that will entitle the two companies to an equal amount of bonds."

This was futile bargaining. The two roads were in no mood for listening to decimals—the Union Pacific already had passed the 78.295-mile mark, and now

Ogden had been won despite the desperate *coup de main* of the wily Huntington. The route to California and the stretch to Humboldt Wells had been lost—that also was a foregone conclusion. But to reach out as far as possible from Ogden and shut the Central off completely the Union Pacific recalled all its graders from the Nevada desert and centred its efforts upon building into the immediate west.

Like the massed spectators in the grandstand of a race-course, a nation stood tiptoe to see the straining thoroughbreds finish their last relay, seven years ahead of the official bookmakers' time for the field.

Working night and day shifts the Union Pacific headed out into the northwest up along the lake, to swing westward and climb the bold ridge to Promontory Summit. This, "600 feet high, with scarcely four miles of direct ascent from the east," was void of natural ravine or water course, and was approached by way of treacherous mud-flats and curving trestles and switch-backs for an 80 per cent. grade.

The grading had been only a month in progress. The construction in the fiercely contesting mountains had dwarfed that upon the flats below. For once the Union Pacific was caught short. Again the cost of speed mounted high. This was not contract work—it was work that the contractors had skipped as a money loser; Dodge and Casement and Reed and Evans took command in behalf of the company, and "without regard to economy." 'Twas no time to talk figures; the

shrieks of the Central's engines might almost be heard; the Central's graders were connecting up with Ogden.

Here where 800,000 yards of excavation had cost by contract $623,000, 178,000 yards were costing $618,000 by the day-and-night system.

"Save the credit of the road—I will fail," Oakes Ames had written, in authorizing the staggering sums called for all the way from Piedmont. And means for the moment seemed to come somehow.

Across the desert west of Promontory the Central limped gamely in, mile after mile. Crocker and Strobridge were driven frantic by the wreck of an iron-train plunging through a trestle. They were held up by lack of rails when every minute of wasted time was maddening. Smallpox devastated their camps. They worked their Chinamen by light of sage-brush bonfires, to make up, and the track lengthened in the night. Of their 650 miles 200 more had been approved, raising the total to 530.

Between Promontory and Ogden their graders and the Union Pacific graders were delving in parallel lines, frequently within rock-roll of each other. The westward-facing Irish gazed at the eastward-facing Chinks and laughed. 'Twas too much for the blood of Erin—this Mongolian host taking white men's wages. And the Paddies laid a "grave"—a blast that buried several Chinamen and sent others squeaking and scurrying. Twice this was done, to the huge delight of the

Murphys and the O'Briens and the Sullivans and all the flannel-shirted, two-fisted crew.

Remonstrance from the Central bosses to the U. P. bosses and orders from General Dodge himself had no effect upon the Irish graders. Whereat the Chinamen, in surprising self-defense, laid a grave of their own, directly above the Union Pacific grade. It was a successful grave—killed two or three Irishmen and injured others. This tit-for-tat ended the physical hostilities; the sport was growing too dangerous.

For a month the contest to indefinite goals waged hotly. The Union Pacific had the more difficult leg to the Summit; the ascent from the west was not difficult. The Union's track-layers were clanging their rails upon the very heels of the pick-and-shovel men and the trestle builders. On March 28 the terminal base of Corinne, twenty-eight miles from Ogden, was located; the rate of advance had averaged a mile a day despite the obstacles; but the Central, fifty miles out on the desert, was doing as well if not better.

At the graders' camp of Blue Creek, eighteen miles on, under the shadow of the beetling Promontory ridge, the end had been declared. For 220 miles from Ogden, or to Humboldt Wells in Nevada, with the exception of the partially closed gap from Blue Creek to the top, ten miles, the Union Pacific grade skirted the Central Pacific grade, upon almost eighty miles into the Wells the Union Pacific rails had been hastily laid. The Union Pacific survey extended to the California line—

and there were rumors that California interests still hostile to the Central had invited the rival road to enter California by Beckwith Pass of the Sierra Nevada to the north.

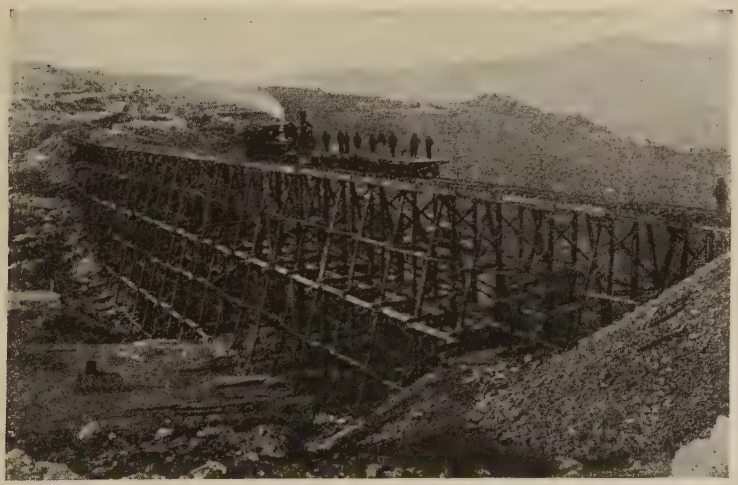
East from Ogden ten miles to the mouth of Weber Canyon the Central grade was opened, the projected division to the head of Echo Canyon, fifty-five miles farther, had been endorsed by Government payment, and the survey had been run across the Wasatch.

Both companies were weary but stubborn, and the people of the United States had incited them to astonish all nations by speed toward the completion of the first transcontinental. The lines met, mathematically, nowhere. The Union Pacific had bagged Ogden and the Salt Lake trade, and with an empty treasury was agreeable to overtures. A compromise between Vice-President Huntington and Vice-President Durant was reached upon advices from the engineering chiefs. Congress forthwith ratified it in decree of April 10:

"That the common terminus of the Union Pacific and the Central Pacific Railroads shall be at or near Ogden; and the Union Pacific Railroad Company shall build, and the Central Pacific Railroad Company shall pay for and own, the railroad from the terminus aforesaid to Promontory Point, at which point the rails shall meet and connect and form one continuous line."

Upon this careful wording "at or near Ogden" both companies based certain hopes and plans. However, now the race was only a matter of history; there

THE 1000-MILE TREE IN WEBER CANYON
"One Thousand Miles from Omaha," 1869
by Courtesy Union Pacific System



ON THE LAST LEG
The Union Pacific approaching Promontory Summit

was no incentive for the Union Pacific to head across the plateau save in friendly competition by mileage figures. From Blue Creek camp—the rendezvous of hangers-on and employes discharged as the work ahead lessened—it began to climb Promontory, carrying its water with it.

A trestle 300 feet long and thirty feet high, another 500 feet long and eighty-seven feet high, numerous extremely heavy cuts and fills and sweeping curves (all to be charged against the Central Pacific, thank heaven!); and on April 28, having this winter and spring crossed three ranges of mountains, passed for sixty miles through the gorges of the Wasatch and in so doing having dropped from over 7500 feet to less than 4300, now issuing breathless upon the broad tableland fifty miles from Ogden, the track-gang might glimpse to-night the twinkle of the Central Pacific bonfires on the desert incline twenty miles westward.

The grades connected six miles before, where the expectant railroad camp of Promontory had settled itself to wait for the end.

Charles Crocker sent word—already sped by telegraph to Doctor Durant in New York:

"Tomorrow we'll lay those ten miles." To his own force he had said: "We'll do it now, when they can't get back at us."

The ten miles would close the gap to a last ten, of which the U. P. share was six. The Union forces prepared for a holiday to witness the feat.

VII

The Finish

Ex-Governor and President Leland Stanford had come out to be spectator. From the Union Pacific end there went forward General Casement, Superintendent Reed, Assistant Superintendent Marshall Hurd, and others, including a number of laborers; and the camp of Promontory sent its roisterous delegation, ripe for any event.

Crocker took his time. Some doubts had been expressed among even his own crews that the Union's record of nearly eight miles could be more than equalled; but he and his field superintendent, J. H. Strobridge, were confident. The men had been hardened by four years' work; they had been drilled to operate machine-like; he had hands in abundance and a plentiful supply of iron.

The ties had already been laid far in advance; early in the morning the teams were hauling reinforcements of others to the fore. The camp train had been relegated to a temporary side-track, and five long trains of rails, spikes, bolts and fastenings were arrayed upon the main track—the rearmost sending forward wagonloads in profusion for distribution by means of the iron-trucks.

Sunup to sundown was the working day; but seven o'clock had arrived before the signal to jump in was

given to the bosses by a sharp word and a lift of the hand from Crocker on horseback.

With nippers the eight selected rail-carriers—four in a squad—seized a pair of rails from the rail-truck and running them forward plumped them down. They were adjusted instantly, the spikes had been dropped, the fishplate fastenings and bolts followed, there was one man told off for each spike, one for the fishplate and one for each bolt; pursuing them closely marched a solid column of Chinamen, the outside files with picks, the middle file, between the rails, with shovels, to ballast the roadbed. Bending their backs another squad of the Chinamen shoved the rail-truck onward over the newly-laid rails, keeping pace with the advance.

The moment that the supply was down to a few lengths, these were thrown off, the emptied truck was tipped to one side, another truck, loaded high, galloped forward, up the cleared way, and the work proceeded without a hitch. Now and again the supply trains moved in.

From water carriers to bolters it was a system that brought generous plaudits. Union Pacific watches timed the march at 144 feet a minute—five pairs of rails, or a pair to every twelve seconds. End o' track was moving forward as fast as a horse might walk.

When the panting truck-crews slowed through exhaustion, another crew of the pig-tailed host sprang

to relieve them. The rail gang was dripping with sweat, but worked with automatic precision.

At 1:30 o'clock six miles of track had been laid in six and one-quarter hours! It was almost incredible. The record had already been broken; the remaining four miles were a granted conclusion, and Crocker gave the signal to "lay off" for nooning. Here, at the six-mile stake, christened the station of Victory but later renamed Rozel, the Central experts might throw themselves down to rest and gasp. James Campbell, superintendent of the division, ran the camp train in and served dinner to the whole force of employes and guests, numbering some 5000. Congratulations were offered and accepted.

An hour's nooning was taken. At half-past two the Central squads lurched into their work for the finish. At seven o'clock, when the sun was setting behind Monument Point, in the near west, the ten miles of new track had been completed, with 1800 feet added for good measure.[1]

It was an achievement that has never been approached by modern methods even in the United States,

[1] A letter to the author from Mr. J. H. Strobridge, the construction superintendent (H. H. Minkler having been the track-laying boss), says: "That morning we laid six miles in six hours and fifteen minutes, and although we changed horses every two hours, we were laying up a sixty-six-foot grade, our horses tired and could not run; consequently it took practically the rest of the day to lay the remainder of the ten miles and 1800 feet." Mr. Strobridge refers to the iron-truck horses and supply-wagon teams, both of which were taxed to the utmost.

where big things along rapid construction lines are monthly accomplished, and where the World War flooded industry to the high-water mark of production. Perhaps there is something in the remark made by a leading railroad official at the recent Golden Spike semi-centennial in Ogden, that whereas man-power in the building fifty years ago was 100 per cent. efficient, these later days are depending upon mechanical means and causing a slackening to only 50 per cent.

At any rate, the ten miles were a man-size job, requiring sheer muscle and nerve combined. The eight men who carried the rails were named Mike Shay, Mike Kennedy, Mike Sullivan, Pat Joyce, Thomas Dailey, George Wyatt, Edward Killeen and Fred McNamara —Irish almost to a man, which was a cause of rejoicing by the Union "Paddies." Each squad of four lifted 560 pounds in each rail, these being Central thirty-foot rails, weighing fifty-six pounds to the yard. Accordingly in the ten miles, taking the Central's estimate of the rail tonnage, eighty-eight tons to the mile, the eight men handled, by physical strength, with only the hour's rest, upwards of 1,970,000 pounds dead weight.

The spike-droppers had distributed, by the reckoning, 52,000 pounds of spikes; the bolt-droppers had dropped 14,000 bolts and 28,000 nuts for the 3750 joint fastenings at seventeen pounds each.

The whole amount of iron moved, and some of it handled several times, aggregated in an excess of 2,000,000 pounds.

Superintendent Campbell hopped an engine and ran the ten miles in forty minutes, as proof that the track had been well laid. The Union Pacific crowd protested that with the proper preparation, such as massing supplies and men for the one purpose, they could outdo the ten-mile record; their seven and a half miles had been laid by the ordinary routine. But inasmuch as the astute Crocker had left them only some three miles to go before attaining the meeting-place at Promontory, they might swallow their chagrin. For some years two sign-boards upon the old Promontory line, between Promontory and Rozel and Rozel and Lake, read: "Ten Miles of Track in One Day."

The next day both companies leisurely laid track to the meeting-place. On May 1 they had stopped short by a pair of rails each. A mere fifty-eight feet separated the two ends o' track. In the one direction stretched the iron trail of 690 miles to Sacramento; in the other direction stretched the iron trail of 1086 miles to the Missouri.

By a spurt of thirteen months' duration the Union Pacific had laid 555 miles of main track and 180 miles of sidings and temporary trackage—altogether 735 miles; had graded from Laramie to Humboldt Wells, 676 miles. In their own period of 1868 and this 1869 the Central had laid 549 miles of main track and graded 615 miles; had laid 501 miles in nine months. The track records were about even, but it must be admitted that the Union Pacific had met greater difficulties, not

"CROCKER'S PETS" AT WORK
The Central Pacific on the Humboldt Plains, 1868

CENTRAL PACIFIC CONSTRUCTION CAMP, 1869
Chief Engineer Montague is the bearded man in center

only crossing their desert in the summer but also their snow mountains in the winter.

Now the two forces might draw apart and rest pending the last act, that of uniting the tracks. The end had come with such swiftness that it left them dazed with the relaxation of mind and body. The Union Pacific had been discharging men rapidly in order to lessen the payroll; only enough had been retained for repairing the last division of the road, so hastily laid in winter, and bringing it up to Government approval. The commissioners had accepted to the 1000-mile tree last February.

The U. P. construction camp was removed from waterless Promontory to the border of the lake below, south from Blue Creek station, where there were springs. Speedily Promontory camp, up on the plateau, and Blue Creek, at the eastern base, brimmed with idle graders and track-layers, until the two places vied in rough play. The gambling tables, the bars and guns and fists were busy, yielding a corpse a night, while the inhabitants waited for the curtain to drop upon the last scene in the great railroad drama. Truth to say, a number of the discharged men were waiting for their pay also.

The Central likewise sought water, but maintained a large camp some distance beyond their end o' track, and well removed from the turbulent Promontory; they sent many of their Chinamen back along the line to complete work that had been left unfinished. When

the ceremony of uniting the rails was performed the Union Pacific had considerably more representatives on hand than the Central Pacific.

By agreement of Chief Engineers Dodge and Montague, in behalf of their companies, this ceremony was set for the end of the next week, or Saturday, May 8. California was alive to the occasion; the efforts to arouse the same flame of interest in the less volatile East failed. California felt a strong local proprietorship in the Central; the Union Pacific had amazed the people by its progress, but its terminus in the West was so far removed that they still could scarcely grasp the fact that the gigantic undertaking was a thing already accomplished. The let-down from the daily reports upon which their minds had been fed for so long produced an apathy that required organized enthusiasm as a tonic.

The enthusiasm was organized in nick of time; but the Union Pacific management was too busy with its own affairs to beat up excursions into a country little known. All that it wanted was to get the matter of connection done with, and find out how much of the road west from Ogden it might control.

The California delegation was first upon the ground. The Central Pacific regular passenger train, leaving Sacramento at six o'clock in the morning of May 6, bore a number of excursionists. It was closely followed by the Stanford special, of engine, tender and superintendent's car. This car, one of the indulgencies

of the road to date, as an official travelling home of the early Pullman style, comprised kitchen, dining conveniences, and sleeping accommodations for ten.

There were aboard President Stanford, Chief Justice Sanderson, Governor A. P. K. Safford of Arizona; Collector Gates, of Nevada; the three Government commissioners, Sherman, Haines and Tritle, and two or three other guests.

The special carried a precious consignment aside from the dignitaries. All the previous evening the contributions of California had been on display in the Sacramento office of the Pacific Union Express. First, the Last Tie, of highly polished native mahogany or laurel, eight feet long, eight inches wide and six inches thick, bound with silver and set with a silver plate seven inches long and six inches wide, thus inscribed: "The Last Tie Laid on the Completion of the Pacific Railroad, May —, 1869. Directors—L. Stanford, C. P. Huntington, E. B. Crocker, Mark Hopkins, E. H. Miller, A. P. Stanford, and Charles Marsh. Officers—Leland Stanford, president; C. P. Huntington, vice-president; Charles Crocker, superintendent; Mark Hopkins, treasurer; E. H. Miller, secretary."

The tie was a donation from West Evans, the Central's tie contractor.

In addition to the tie there was the Last Spike, cast from twenty-dollar gold pieces; of regulation size or about seven inches long and extended, at the time of casting, by a gold nugget. The nugget was designed

to be broken off at the ceremony and melted into souvenirs. Upon the head of the spike was the legend: "The Last Spike"; on one side: "The Pacific Railroad; Ground Broken January 8, 1863; Completed May —, 1869"; on another side: "May God continue the unity of our country as this railroad unites the two great oceans of the world"; on the third face: "Presented by David Hewes, San Francisco"; on the fourth, the names of the company officers.

The value of spike and nugget was set at $413 by the Sacramento reporters, but probably was higher.[2]

The Express Company itself had presented a silver-headed maul for the driving of the golden spike into the laurel tie.

On the way out the Stanford special narrowly escaped catastrophe—an omen offset by good luck.

[2] Description of tie and spike is taken from a Sacramento newspaper, presumably of May 6, 1869. Concerning the spike, Mr. Robert B. Moore, who was a boy of sixteen at the time, supplies the author with somewhat different data. He was then employed in the Vail blacksmith shop at San Francisco. A jeweler, Gray, brought in a "piece of gold, about eight inches long and the diameter of a fifty-cent piece." He wished it drawn out a little by fire and hammer. This was done. He explained that it was designed for a golden spike. It had no appearance of having been composed of gold coins, and he did not mention any such method. The David Hewes, according to Mr. A. F. Hess of the present Bureau of Pensions of the Southern Pacific Railroad Company, was the descendant of Joshua Hewes, New England pioneer, and gained prominence as a contractor in San Francisco by removing sand dunes with the first of the steam shovels. About the year 1889 he married Miss Lathrop, sister of Mrs. Leland Stanford.

Chinamen cutting timber on the mountain above the entrance to tunnel No. 14, near the State line east of Truckee, saw the regular train pass, and not being aware of the following special carelessly skidded a log down upon the track below. The log, fifty feet long by three and one-half feet through, landed in a cut, with its one end against the bank and its butt upon a rail. The engineer, rounding the curve here, had scant time to slacken. He struck; the engine was badly crippled, a guest riding on the cowcatcher was seriously injured; and the log scraped all along one side of the car, taking the steps with it.

A wire was sent ahead from the next station in time to hold the passenger train at Wadsworth until the Stanford coach might be attached. But those "Crocker's pets" who had made the road possible almost dislocated the final events that were to celebrate their handiwork.

The coach arrived at Promontory Point Friday afternoon, the seventh, in the anticipation that the ceremonies were to occur the next day. No preparations were found. The telegraph operators for each end o' track were housed in tents within a few rods of each other. Query was wired to the Union Pacific Ogden office. General Casement replied that it was impossible for the Union Pacific delegation to arrive before Monday. The heavy rains had interrupted traffic east of Ogden.

That was unwelcome news. President Stanford telegraphed back to Sacramento and San Francisco, informing of the change in program. Sacramento and San Francisco answered that it was too late now for them to alter their own schedule of festivities; they were going to celebrate anyway. And so they did—for three days.

The official party and the other passengers found themselves in an embarrassing position. Rain was falling; here they were, stranded at Promontory in the desert, with a two days' wait ahead of them. Some hired rigs and drove to the nearest Union Pacific construction camp beyond. General Casement ordered out a special train from Ogden to bring them in. This night was spent by President Stanford and guests in his car. The next morning the U. P. superintendent's car arrived to take them upon a tour into Weber Canyon. The invitation was gladly accepted.

It was plain to the Central excursionists that the Union Pacific had encountered weather difficulties. The spring rains, of unusual amount, were playing havoc with the roadbed down through the canyons of the Wasatch—a roadbed levelled in haste to be rehabilitated at leisure. The approaching train from the East, bearing the first excursionists and through passengers, was creeping in at snail's pace upon a red-flag trail. With tourists gathered from New York, Boston, Chicago and intermediate points it had left Omaha May 5;

at darkness of May 8 was to be stalled in the downpour near the exit from Weber Canyon, ten miles out of Ogden. The conductor declined to proceed until daylight. Whereupon the boldest of the miserably shivering and well-soaked passengers took stage for the haven of Salt Lake City, forty miles south.

The section men were working hard to fortify the track and bridges (the Devil's Gate bridge had to be closely watched all day Sunday and Monday), but the operating department could give no guaranty of anything pertaining to arrival of trains.

Saturday night the Stanford party was returned, somewhat dampened. The Stanford car withdrew to a more sightly location at Monument Point siding, thirty miles west from Promontory, where there was a view of the lake. The steward sallied forth and shot a mess of plover. Meanwhile San Francisco had been celebrating, whether or no, and Sacramento was trying only to curb the spirits of its hundreds of visitors.

In the Promontory region the rain continued, drenching the plateau and huddled, muddy town and the hardy construction camps. The outlook from the Stanford car was dismal.

The Union Pacific scored by the delay. In the evening of Sunday, May 9, the clouds broke, with promise of fair weather. The construction force heard that the Central was preparing to sally early in the morning and extend its spur, temporarily laid, into a

complete siding, thus establishing a claim to Promontory as a Central terminal.

General Casement hustled his gangs. He and Chief Engineer Dodge, who held the position of general superintendent also, worked all night. At daybreak they had finished their own sidings and Promontory was a Union Pacific terminus. By the time that the Central construction train puffed in, bearing material and Chinamen, the Union ballasters greeted it with a cheer. "There was some chagrin and joking, but no ill feeling," relates Sidney Dillon. The ten miles of track did not taste so bitter to the Casement Irish now.

This was the day; and a fine day. The weather had cleared so cold that ice formed upon still water, but the morning had dawned brightly, with a fresh breeze that ironed out the flag snapping from the telegraph pole overlooking the gap in the track, and whipped the Great Salt Lake into a multitude of foam-tipped waves.

Promontory town, of a single miserable street lined with canvas and rough board shacks, was arrayed, the drab, in all her festal clothes. It was her hour. For one brief heyday she occupied the centre of the National stage and acted as hostess to giants of finance and industry. She would not have traded places with a New York or a San Francisco. She stood upon her present, not upon her rather dubious past, short and turbulent.

The Wedding of the Rails resembled a runaway marriage. The spot for the ceremony could not well

have seemed more remote from interference, if accessible at all. The plateau of Promontory Summit was elevated 5000 feet. To the south, behind the camp of Promontory, it rose sharply, cedar covered, and bordering the lake gave from its crest and out-thrust point a magnificent view of the expanding inland sea 1000 feet below. North from the tracks the bench again rose, to form a paralleling parapet.

Therefore the wedding occurred in a flat valley, bare except for the sage brush and a sprinkling of scrub cedars, its portals concealed, and the uninvited world, save the circling buzzards, shut out.

It had been planned that the Central Pacific and the Union Pacific specials should arrive, from west and east, at the same moment. But the ready construction trains were first on hand, loaded inside and out and from cabooses to the pilots of the tooting engines with the cheering track and grading gangs. They side-tracked, and their bevies poured out. A-straddle of sorry grading nags, another concourse was hastening.

A Central Pacific excursion train pulled in, received with applause from the crowd. To some of the few settlers who had ridden across country for the celebration, this was their first sight of a railroad. The train, drawn by Jupiter-60, Engineer George Booth, Fireman R. A. Murphy, Conductor Eli Dennison, fluttered banners and bunting in the red, white and blue—a noble sight. The Stanford car had been shunted upon the

siding. The official party was increased by Treasurer Hopkins, Engineering Chiefs Montague and Gray, Superintendent Strobridge, and others.[8]

A handful of the Chinamen was engaged in putting last touches upon the gap in the tracks—preparing it for the last tie and the joining of the iron. The gap had been spanned by one line of rail, leaving only the south ends of the ties vacant.

Between ten and eleven o'clock the Union Pacific special excursion train arrived, bringing the Eastern officials and also four companies of the Twenty-first Infantry, Major Milton Cogswell commanding, with the headquarters band, from Camp Douglas, Salt Lake, *en route* for the Presidio at San Francisco.

The train, B. S. Mallory, conductor, Sam Bradford at the throttle of the Rogers-119, was characterized as the most "elegant" in equipment, with the largest number of passengers, that had yet run over the line.

The Stanford muster trudged forward to the Durant Pullman (described as "a very handsome car, in walnut," as might be anticipated of a magnate whose office was exotic) and lustily bravoed by the assembling throng shook hands with the U. P. delegation.

[8] Reports of the day naturally include Vice-President Huntington and Superintendent Crocker among the Central notables present. Mr. Strobridge states that this is an error, Mr. Huntington having been in New York and Mr. Crocker being detained in Sacramento during the time of the ceremony. The apparent defection, for business reasons, was balanced by the unaccountable absence of Oliver Ames, the U. P. president, and his brother Oakes Ames.

This was composed of Vice-President Durant, courtly Sidney Dillon, chairman of the board of directors and head of the Crédit Mobilier construction company, the portly white-haired John Duff from the Boston membership, General Dodge, Consulting Engineer Silas Seymour, General Casement and his brother Dan, Superintendents Sam Reed and James Evans, Assistant Marshall Hurd, and a number of guests, including the Reverend Dr. John Todd, of Pittsfield, Massachusetts, imported to bless the union of the contracting parties.

Any prevailing differences between the garb of official East and official West—ranging from the broadcloth of the functionaries to the business suits of the workers—were harmonized by the attire of Doctor Durant, who wore a smart black velvet coat and a modish New York tie that in brilliancy rivalled, according to a chronicler, the other "last tie."

The difference between the two locomotives, Jupiter-60 of the Central and Rogers-119 (possibly a tribute to the Banker Rogers who later effected the rescue of the marooned Durant) was radical. The Central engines were addicted to the flaring funnel stack, whereas No. 119 presented the straight stack—a feature crowned, to be sure, on the plains, with the spark-arrester cap. But both engines were ornate with brass bands and filigree, calling for never-ending attention.

The official group proceeded to the gap in the track,

kept clear by the infantry. A second train from the West, bringing more sight-seers, arrived; and a second from the East, loaded chiefly with Utahans accompanied by the Tenth Ward band of Salt Lake City. The band was resplendent in the gayest of uniforms and the brightest of new instruments for which it had sent $1200 to London.

Neither Brigham Young nor the governor of Utah was present. The astute Mormon leader was upon church and personal business in southern Utah, and the next Monday was formally to officiate at the breaking of ground for his own Utah Central road, which should connect the City of the Saints with Ogden of the U. P. Governor Charles Durkee, Gentile Wisconsin appointee in the Territorial chair, was on hand.

Bishop John Sharp—the "Railroad Bishop" of Utah's Mormon history—and Colonel Charles R. Savage, whose photographs of the day's scenes have proved of lasting record, brought the apologies of President Young. In all, the Salt Lake capital sent a worthy deputation. Ogden sent her mayor, Lorin Farr, and among others the companion woman for Mrs. Strobridge, in the person of Mrs. Ryan, wife of the Central's Ogden station agent. These two were the only women from outside present at the Promontory celebration. Promontory town, however, contributed a quota of furbelows.

"Also present" there were representatives from the newspapers of East and West: from the Omaha

Herald, Assistant Editor Foote; from the San Francisco *Chronicle,* Atwell, who was better known as "Bildad the Scribe"; from the Sacramento *Press,* Doctor Harkness. New York, Chicago and Boston had their correspondents; the Associated Press was, of course, on hand.

By orders of the Western Union superintendent, W. B. Hibbard, wires were being run from the nearest telegraph pole down to a special operator's kit upon a small four-legged deal table beside the gap, where W. N. Shilling, of the Ogden office, presided. A strange sense of awe pervaded more than one of the onlookers, who realized that in sunset land San Francisco was bending attentive ear, that afar in the East Omaha, St. Louis, Chicago, Philadelphia, Washington on the Potomac, New York and Boston of the Atlantic, and New Orleans, Queen City of the Gulf, were focusing upon this small spot in the erstwhile region of nowhere. The hot sun rode higher into the blue dome, and the plain and the blue-gray ridges shimmered; the peering crowd, afoot and on mule and horse, shifted and jostled, illy content with the brave music from the bands. The number of spectators has been variously estimated, from Sidney Dillon's careless 500 or 600, mainly "contractors, employes and surveyors," to the more fluent guidebook's 3000. It is probable that it was 1500 at the utmost, with the construction men—the Irish, the Chinamen, some Mexicans, some Americans, a cosmopolite body—in the ascendant.

They had toiled, not to this end but to this time, for the ending was only an incident in the race.

General Dodge and Edgar Mills, of Sacramento (son of the San Francisco banker, D. O. Mills), had been conferring together. The space to the south of the gap was kept open, the officials and guests of the occasion grouped themselves on either hand within it—the Heroine of the C. P. and Mrs. Ryan and the small children occupying a post of honor.

Received with craning of necks and admiring comments, Construction Superintendents Strobridge of the Central and Reed of the Union Pacific brought from the Stanford car the silver-plated laurel tie. The two rails followed—the Central rail proudly carried by a clean-frocked squad of Chinamen under their boss, H. H. Minkler, the U. P. rail carried by an Irish squad under Foreman Guilford. The cheers broke out afresh. A veteran recounter says that " we all yelled like to bust " throughout the program; the engines shrieked.[4]

Just before noon General Dodge, acting as spokesman while Mr. Mills conducted proceedings, lifted his hand for silence and introduced Doctor Todd.

[4] A letter to the writer from another of the spectators relates that when the two rails were arrived, a voice called to Photographer Savage: "Now's the time, Charlie! Take a shot." The word "shoot" was all too familiar to the Mongolians out of sundry painful experiences. They "looked up, and saw the opening of the camera pointing their way"—and dropping the rail stampeded for cover, amidst the joyous shouts of the delighted crowd. It took considerable argument to get them back for the laying of their rail.

The telegraph instrument had been clicking the message east and west to impatient enquiries from various offices:

"To everybody. Keep quiet. When the last spike is driven at Promontory Point, we will say 'Done.' Don't break the circuit, but watch for the signals of the blows of the hammer."

The instrument clicked again:

"Almost ready. Hats off; prayer is being offered."

This was bulletined at 2:27, eastern time, in Washington. By orders of James Gamble, head of the Western Union, all wires were cleared for Promontory news, which had the right of way. Consequently the bulletins flashed from the little deal table high in the Utah desert were read almost at the same moment by the crowd collected in front of the telegraph offices in the majority of the large cities the length and breadth of the continent.

At Promontory Doctor Todd had concluded, ere this, and the abligatory speeches were being delivered. By President Stanford, in part:

"The day is not far distant when three tracks will be found necessary to accommodate the commerce and travel which seek a transit across this continent. Freight will thus move only one way on each track, and at rates of speed that will answer the demands of cheapness and time. Cars and engines will be light or heavy, according to the speed required and the weight to be transported."

While there was much curiosity to see the handsome figure of California's noted ex-governor, who was rivalled by only the likewise noted Huntington, his words were not prophetic to many of the hearers, and struck with astonishment a boy of nine, perched atop a telegraph pole. His father had brought him to Promontory from California that he might see and remember, for "there would never be another transcontinental line built—it was too expensive to be repeated."

Doubtless many another mind that day shared that opinion. But within attainment to full stature the same boy was enabled to cross country by choice of several transcontinentals.

Chief Engineer Dodge, of the Pacific, was called for. As general superintendent he said:

"Gentlemen, the great Benton proposed that some day a giant statue of Columbus be erected on the highest peak of the Rocky Mountains, pointing westward, denoting this as the great route across the continent. You have made that prophecy to-day a fact. This is the way to India."

The crowd yelled, with cheers for the United States, for the Star-Spangled Banner, for the Pacific Railway, for the officers, for the men who raised the money, for the men who built the grades and laid the track—not forgetting the engineers who found the way.

To this there might have been no end; it was a crowd waxing exuberant with proper enthusiasm. The

telegraph operator had sent the bulletin—received in the East at 2:40:

"We have got done praying, the spike is about to be presented."

Some trouble was being experienced at Omaha with the wires, and the bulletins were delayed.

Chicago office replied:

"We understand. All are ready in the East."

The spikes had been brought forward; also the silver-headed maul, which the operator connected with his instrument.

To Doctor Durant, the Union Pacific vice-president, Commissioner F. A. Tritle, who was also Republican aspirant to the governorship of Nevada, presented a spike of silver from the Comstock lodes.

"To the iron of the East and the gold of the West, Nevada adds her link of silver to span the continent and weld (wed?) the oceans."

Rumor said that in forging this spike 100 miners each had struck one blow.

Governor A. P. K. Safford of Arizona added a spike of alloy; gold, silver and iron.

"Ribbed in iron, clad in silver, and crowned with gold, Arizona presents her offering to the enterprise that has banded the continent and welded (wedded?) the oceans."

Idaho and Montana furnished spikes of silver and gold. California was generous with two golden spikes, one for either meeting end of rail. They were pre-

sented by Doctor Harkness, of Sacramento, in behalf of that State, "within whose borders and by whose citizens the Pacific Railroad was inaugurated."

"From her mines she has forged this spike," he addressed, to the waiting Stanford, standing in readiness to receive the silver-headed maul from the Pacific Union Express representative, Mr. Coe, "and from her woods she has hewn this tie, and by the hands of her citizens she offers them to become a part of the great highway which is to unite her with her sister States on the Atlantic. From her bosom was taken the first soil, so let hers be the last tie and the last spike."

The telegraph instrument had ticked off:

"All ready now; the spike will soon be driven. The signal will be three dots for the commencement of the blows."

Sidney Dillon states that the arrangements were made on short notice; that the two companies were too much occupied with their own affairs, financial and building, to get up an elaborate program. Nevertheless, graceful speeches, these, and the responses; and all in all a pretty little ceremony, without frills but impressive. The brief words and the picturesque scene must have struck home to even the rudest element in the human mélange there gathered.

The silver spikes had been set into holes prepared to receive them, and in perfunctory fashion partially driven by rather abashed guests. Doctor Durant was invited to drive his golden spike, and debonairely accomplished the feat.

The Last Spike remained untouched. President Stanford was to have the privilege of signalling the waiting world. It was a moment pregnant with history; likened afterward to the signing of the Declaration of Independence and the landing of the Pilgrim Fathers. National progress bided only the hammer taps that from the long campaign to level the mountains and split the deserts dividing a great people should announce the "Open, sesame!" of "Done!"

Amid the hush, and inconvenienced by the dangling wires, President Stanford plainly was nervous. He delivered a tentative blow at the golden head—a blow to be heard "the farthest of any by mortal man," like the first shot fired at Lexington; but he struck only the rail. That mattered not. The gods were gracious and the telegraph operator obliging. The instrument recorded "Dot! Dot! Dot!—Done!"

The celebrating San Francisco and Sacramento received it direct. The Omaha board grew panicky, but the operator there was fully equal to the occasion, and instantly passed the message on to Chicago.

At 2:47 (eastern time) the magnetic ball upon the dome of the capitol at Washington fell and the crowd before the telegraph office was shouting. At San Francisco the three dots had pealed the heavy fire-bell in the city hall tower and had started the discharge of 220 guns at Fort Point. At Sacramento the answering din of cannon, whistles and bells drowned the uproar of thousands of excursionists brought in from valleys

and mountains by free trains. At Omaha one hundred guns were booming from Capitol Hill, and a cheering procession of military and civic companies traversed the streets.

In New York another 100 guns were firing, Trinity Church was chanting the Te Deum, and the bell-ringer was standing ready to follow with Old Hundred on the chimes. In Philadelphia the Liberty Bell had spoken, and Independence Hall was vibrant to a joyous clamor. Buffalo echoed to the "Star-Spangled Banner" sung by a mighty concourse in the streets. Through decorated Chicago wended a procession four miles long, and Vice-President Schuyler Colfax was inspired for his evening address. In Salt Lake the great Tabernacle was filled to overflowing with Mormons and Gentiles forming one happy family. In Ogden, where the news from the front had been received at 12:32, the guns had been firing for fifteen minutes from courthouse, city hall and Arsenal Hill; all business places were closed, and beginning at two o'clock 7000 people, gathered in the new Tabernacle, listened to addresses and to a program by Huntington's Martial Band, which opened with "Mill May" and closed with "Hard Times Come Again No More."

On Promontory Point, President Stanford, after his first remarkable blow, had politely stood aside for Vice-President Durant, who with responsive courtesy imitated the first effort by striking the rail also, instead of the Last Spike.

To President Grant at Washington there was flashing the formal announcement:

PROMONTORY SUMMIT, UTAH, May 10, 1869.

The last rail is laid, the last spike driven. The Pacific Railroad is completed. The point of junction is 1086 miles west of the Missouri River, and 690 miles east of Sacramento City.

LELAND STANFORD,
Central Pacific Railroad.
T. C. DURANT,
SIDNEY DILLON,
JOHN DUFF,
Union Pacific Railroad.

President Stanford and Vice-President Durant grasped hands across the tie. The perspiring official photographers, Colonel Savage, of Salt Lake City, and Albert Hart, of Sacramento, worked hard with their slow lenses and delicate wet plates. The crowd was again yelling "fit to bust"; the bands tooted and the engines shrieked, and the nine-year-old boy almost fell from his telegraph pole. The operator was busily receiving messages from East and West.

All the functionaries present were invited to tap the Last Spike, and it soon was in a rather battered condition beside the scarred iron. But no one begrudged that extravagance. The final setting of the spike was awarded to the two engineers, Dodge and Montague—the men who had found the way. Mr. Montague struck first, General Dodge second. They also shook hands. After that there was a medley of hammering, with various spikes as the marks.

The two engines, Jupiter and 119, which had been separated by the late gap, were unhooked from their trains. Bearing enthusiasts who clung like ants, they advanced proudly down a cheering lane. The " stokers " took the throttle, the " drivers " swung out to the pilots, each with a bottle of champagne; and as the locomotives touched noses, the bottles were broken upon the opposite pilots, so that the wine foamed down upon the last tie and the last rails and the last spike.

Hooray! The engineers shook hands, and the cameras clicked.

Snorting Jupiter and 119 backed up and hooked on. The Central train retired a short space; the U. P. train entered, crossed the juncture of the tracks, halted an instant, and majestically withdrew. The Central train pursued, to achieve a similar feat. The transcontinental iron trail was an entity.

Scarcely had the gap been cleared when joint crews of Central and Union trackmen charged in with spades, crowbars and pinchbars; jerked the precious spikes from the precious tie, unbedded the tie itself, substituted a common tie, drove iron spikes home and bolted the fishplate fastening. It was accomplished with the celerity born of toilsome years, but with a celerity none too much practiced, for scarcely had the workers straightened their backs when the rush was upon them. Knives were digging at the tie, reducing it to splinters, and hacking at the rails. Verily, the human mind ran in about the same channels as to-day, fifty years later.

THE ENGINES TOUCH NOSES, PROMONTORY SUMMIT, MAY 10, 1869
Dr. T. C. Durant in the centre
By Courtesy Union Pacific System

Six ties and two rails were demolished before the juncture was left in peace to the slower inroads of time.

By motion of the Union Pacific the combined officials and guests adjourned to the Durant Pullman—that "superb piece of cabinet work"—and received the telegrams that were pouring in.

Then by invitation of the Central party they all adjourned to the Stanford car, where wine and speeches flowed during a "sumptuous lunch."

In mid-afternoon the track was cleared both ways, as the traffic returned east and west. This night Promontory, of thirty tent-houses, left to its own devices, indulged itself with a grand ball, a banquet, and a torchlight procession. The Central Pacific paid a warrant of $1000 to George Rowland, "account of celebration upon completion of the railroad."

At San Francisco a genius of the West had drafted his famous verses upon "What the Engines Said":

> Pilots touching—head to head.
> Facing on the single track,
> Half a world behind each back?

And a genius of the East had uttered, as demanded by his muse:

> Ring out, oh bells! Let cannon roar
> In loudest tones of thunder.
> The iron bars from shore to shore
> Are laid, and Nations wonder.

Through deserts vast and forests deep,
Through mountains grand and hoary,
A path is opened for all time,
And we behold the glory.

* * * * * * * *

We reach out toward the Golden Gate
And eastward to the ocean.
The tea will come at lightning rate,
And likewise Yankee notions.

From spicy islands off the West
The breezes now are blowing,
And all creation does its best
To set the greenbacks flowing.

The eastern tourist will turn out
And visit all the stations,
For Pullman runs upon the route
With most attractive rations.

On the morning of May 11 the first transcontinental passengers by rail from the East passed across the legendary last tie, once more whittled to the danger point.[5]

On May 12 a San Francisco dispatch in the New York papers announced that at the moment of the driving of the last spike a consignment of tea had been started eastward—thus "inaugurating the overland trade with China and Japan." This, says Sidney Dillon, was the main thought of the officials at Promontory:

[5] The Golden Spike is still preserved, and so is the silver-headed maul. The Last Tie was discovered, a decade ago, dust-covered and neglected in a store-room of the Southern Pacific shops at Sacramento. It was cleaned up and removed to the directors' room in San Francisco, where the fire of 1906 destroyed it.

the Pacific Railway led to the marts of the Orient, rather than to the many doors of the local, widely lying Occident.

May 14 the Central Pacific paid another voucher of $2000, to George Rowland, "account of celebration upon completion of the railroad." Well, it was worth the money, at any fiddler's price. According to current reports, that was indeed a "sumptuous" affair in the Stanford car.

"So mote it be," as the facetious Silas Seymour would have said. By evening, following the ceremonies, there was only a small force of construction and operating experts here upon the ground, to whip the junction into shape for through traffic.

Many of the engineers and construction officials met again, at the laying of last rails on the Texas and Pacific, when it joined the Southern Pacific; on the Santa Fé and the Atlantic and Pacific, on the Canadian Pacific, and elsewhere. A great era of railroad building had definitely opened; the graduates of the Union Pacific and the Central Pacific were equipped for any task.

Of the brilliant Dr. Thomas Durant there is one last word. While his contemporaries, Stanford, Hopkins *et al.*, were speeding westward, content and in funds sufficient for the day, he himself, speeding eastward, encountered a most vexatious demand for a reckoning.

At Piedmont, on the east slope of the Wasatch summit, his train was halted by gunshots, a pile of ties and an open switch—summons quite sufficient from 300 discharged and not yet paid graders and tie

cutters. They had subsidized a willing telegraph operator, installed him in the station, kept tab upon the approach of the Durant train bringing the Durant cars—and here they were.

The train was shifted to the siding; the tail was uncoupled and the engineer told to "move along," which according to the narrator he was "very glad to do." The cars composing the quarters of the Union Pacific dignitaries and guests were placed under guard until the demands of the insistent crowd were satisfied. It was a veritable hold-up—the first on the road.

The amount of back pay aggregated in the neighborhood of $200,000. Doctor Durant had no immediate means of supplying the deficiency—and he argued that he was not to blame, anyway. The spokesmen for the crowd were obdurate. The rather perturbed vice-president and financier telegraphed east and west, applying for ransom; but he was kept in custody from the eleventh to the thirteenth before Henry Rogers, who controlled a string of banks in Cheyenne, Laramie and Salt Lake, effected his release by transmitting the cash.

Doctor Durant, who had been made the scapegoat in lieu of irresponsible contractors, proceeded on, with the remark that he had "had enough of the West." And the West knew him not again. He vanished also from railroading.[6]

[6] The above incident is related by Mr. W. H. Hampton, of Colorado, a surviving member of the "gang." His own share of the pay due was $478, earned by cutting ties.

UNION PACIFIC LOCOMOTIVE 119
At Promontory Point, May 10, 1869. Dignitaries of the day posed on the boiler

IN THE DAYS OF THE OLD WOOD-BURNERS
Central Pacific R. R., Promontory Point, May, 1869

VIII

Blood on the Trails

The Pacific Railway across continent was built straight through a country hostile by nature and by man. For the eastern march and the western march alike there were the mountains and the utter deserts; but whereas the Central Pacific invaded the rabbit runs of the wandering Paiutes and Shoshones (Nevada's native sons deficient in weapons and morals), the Union Pacific struck at the heart of the buffalo range, long the rich preserve of the lordly Sioux and Cheyennes. The iron trail crossed the pony trail—the lodge trail and the war trail. The telescopic transits of the surveyors brought the shriek of the iron horse, the shriek of the iron horse was the banshee wail from the bad gods, dooming the wild meat.

The march of the Central Pacific was not an armed march. With that adroitness which levelled all opposition save the mountains, the company early minimized Indian troubles. It was fortunate in having to deal with only the Diggers and the Snakes, who had already been taught humility by the murderous retaliations of the emigrants and the miners.

A solemn treaty was negotiated—a treaty remarkable, first with the Paiutes, then with the Shoshones. "We gave the old chief a pass, good on passenger cars,

and we told our men to let the common Indians ride on the freight cars whenever they saw fit," Collis P. Huntington explained. The free transportation was potent, as always. The company promised that if the Indians would take care of the road, they would be cared for in return. Selah! The pleased Paiutes and Shoshones kept faith.

Succeeding California railroad projects copied. The Atlantic and Pacific, through northern Arizona to meet the westward-pointing Santa Fé; and the Southern Pacific upon the bloody trail of the Butterfield Southern Overland Stage down toward the Mexican border, tore a leaf from the Central's book. The Apaches perused, and agreed.

After the surveyors had driven home their stakes, and after the graders had enforced rule and misrule, the fierce Apaches lifted no arm against the section men, train crews or passengers upon the Southern Pacific Railroad in Arizona and New Mexico. Another miracle, this.

The plains Indians were of different mettle. General Sherman thought that he had solved their problem when in writing to his brother the Congressman he advised:

"No particular danger need be apprehended from the Indians. . . . So large a number of workmen distributed along the line will introduce enough whiskey to kill off all the Indians within 300 miles of the road."

The whiskey was wielded manfully, but it proved

a double-edged weapon. Sherman himself was summoned to the rescue.

"Every mile had to be run within range of the musket," said General Dodge, speaking of the years when the track was chasing the graders. "In making the surveys numbers of our men, some of them the ablest and most promising, were killed; and during the construction our stock was run off by the hundred, I might say by the thousand; our cars and stations and ranches burned. Graders and track-layers, tie-men and station-builders, had to sleep under guard, and have gone to their work with their picks and shovels and their mechanical tools in one hand and the rifle in the other, and they often had to drop one and use the other."

The military departments protected. Through Nebraska and Wyoming the road was "reconnoitred, surveyed, located and built inside their picket line." But, as General Crook suggested, it is hard to surround three Indians with one soldier; and there was a period when it did seem as though the Pacific Railway from the east could proceed no farther.

The opposition to the advance of the iron horse and the medicine wagons of the whites was manifest openly in 1866, when survey parties were driven in from the plains of central Nebraska, and Chief Red Cloud, of the Sioux, personally warned the engineers in present Wyoming that they must turn for the back trail.

"We do not want you here. You are scaring away the buffalo."

The bloody year 1867 dawned redly. This was the year when the northern Plains Indians made one last concerted effort to halt the forward march of empire: when all along the Smoky Hill emigrant route through Kansas into Colorado, and all along the great Overland route on the north, through Nebraska, ranchers and stage hands fought from sod walls and galloping coaches for their lives; when Custer rode and Hancock marched and Sherman raged; when the advance of the Kansas Pacific crumpled and the Union Pacific nevertheless did its 260 miles of track, 1600 miles of line, 3000 miles of reconnoissance, in defiance of the very devil.

The bulk of the defense by the military fell upon the Second Cavalry, the Twenty-first, Thirtieth and Thirty-sixth Infantry, stationed at Forts Kearney, McPherson, Sedgwick, Morgan, along the Platte; new Fort Russell at Cheyenne, Laramie headquarters to the north, Sanders beyond the Black Hills, Douglas of Salt Lake City; assisted upon the plains by the free-roving Pawnees of Major Frank J. North, the white chief.

He had organized them; him they trusted because he spoke their tongue and had lived in their lodges. There were four companies enlisted into the United States army as scouts and outfitted with regulation arms and clothing. They were incorrigible as soldiers —they cut the seat from their blue trousers, in battle they preferred to ride breechesless altogether; it was useless to place them upon guard duty, they remained

as much Indian as a house dog remains a dog; but when they sighted their hereditary enemies the Sioux and the Cheyennes they fought with the reckless abandon of crusaders charging the Moslems.

The year 1867 broke first upon the heads of the devoted surveyors. L. L. Hills, assistant chief for James A. Evans, who had charge of the location work from Cheyenne westward over to the Laramie Plains, was the initial victim.

The Sioux attacked his party in May, six miles east of present Cheyenne; killed him, and had it not been for the prompt leadership of Axeman J. M. Eddy might have wiped out the whole crew. Eddy, a lad scarcely yet of age, organized the defense and made a running fight of it until the Sioux sheered off.

General Dodge learned of the affair by dispatch from the commanding officer at Fort Collins of northern Colorado, saying that one J. M. Eddy had brought a Union Pacific survey squad in from the Lodge Pole fifty miles to the northeast, and that the chief of the party, by name Hills, had been killed.

General Dodge knew nothing about the employe Eddy; but upon inquiring in the engineering department at Omaha ascertained that he was upon the rolls as an axeman, and had served in the Sixteenth Army Corps during the war.

That being the general's own corps, he naturally was the more interested—at the same time recognizing by the Fort Collins dispatch that the young man had

performed a brave deed. So, inasmuch as he was about to start west with General Rawlins and guests, he wired to have Eddy meet him at Lodge Pole Creek, on the survey line in southeastern Wyoming, near the scene of the tragedy.

There he found out by conversation that Eddy had entered the Thirteenth Illinois Volunteer Infantry when only sixteen, and had fought throughout the war. Prompt promotion in survey duty followed the conversation, and was well deserved, for other promotions ensued throughout the construction period of the Union Pacific. From the Union Pacific Engineer Eddy accompanied his chief to the building of the Texas Pacific; he continued in the railroad service and died in the harness as the widely-known general manager of the Southwestern System. Few careers have been more fully earned than that of J. M. Eddy, the axeman who by his incisive character rallied his comrade surveyors against the triumphant Sioux.

The station of Hillsdale, upon the Union Pacific in southeastern Wyoming, is a silent monument to the man who died there. A mild and peaceful name this, but like many a mild and peaceful personality it harbors memories unsuspected.

Continuing westward, General Dodge was met by more bad news. Percy T. Browne, another assistant engineer in the Evans division, also had been killed; and he not the only one.

Browne was young, and a veteran. He had risen

from the ranks, having enrolled in 1864 as rodman. Last fall he had been engaged in reconnoitering through the main ridge of the Colorado Rockies for a practicable route across out of Denver. From Berthoud Pass, 11,300 feet, he had worked north to Boulder Pass, 11,700 feet, and thence to Argentine Pass, almost 13,000 feet where fifteen feet of snow covered the summits. A terrific early storm caught him and party, compelled them to abandon their animals and fight their way afoot to the lower country.

This spring of 1867 he had left Omaha March 6, and finally had forced a trail through the spring blizzards to La Porte stage station of northern Colorado; on north to the Black Hills, and at last to Fort Sanders at their western base. His orders were, "to develop the country from Fort Sanders to Green River," two hundred and seventy-five miles.

No assignment could have been more dangerous. The region comprised the Laramie Plains, that prized hunting range of the Sioux; and the far, unprotected, practically unknown Red Desert and Bitter Creek basins beyond.

With his party he was only six days, or fifty-five miles, out of Sanders, and was reconnoitring from his camp near Rock Creek north of the Overland Stage route through the Laramie Plains, when on the evening of May 12 it was rushed by the Sioux. A wood-gathering squad under charge of the stripling Stephen Clark was cut off; Sergeant Clair, of the Second Cavalry

escort, was killed; a span of work mules was stampeded, and the few men barely managed to reach shelter, with the loss of several guns.

The attack was resumed in the morning. This time Clark fell. He was from Albany, New York—a nephew of Thurlow R. Weed, the veteran New York State journalist and politician, and "had much endeared himself by his genial and happy disposition to all the members of the party."

The Sioux were beaten off in action which caused Corporal Cain, Privates Doyle, Lipe and Hughes, of G Company, Second Cavalry, to be mentioned by Colonel Gibbon in dispatches. Mention of the engineers in the field reports refers to the dead, and not so much to the living, by name.

Browne took the bodies back to Sanders and recouped. On June 1 he led his party on again. The survey work must not stop. They all crossed through the Laramie Plains, running lines as they went, forded the North Platte River, and presently had the Red Desert before them.

Field survey work in Indian country is particularly perilous. The party is necessarily strung out, with the level-men and the front and rear flag-men separated from the chief and from each other by a quarter of a mile. The red skulkers scarcely could ask better game.

Browne had made one advance trip over the divide into the first of the desert basins; had expected to find the western slope with streams flowing toward the Pa-

cific. But his maps were untrustworthy. As a matter of fact, the Red Basin was the first of several basins like the bottoms of dried seas, and the feeble waters flowed independently of the Continental Divide plateau.

That puzzled him. He decided to reconnoiter farther; and with eight troopers as escort, leaving his party to continue the surveys for locating a line from the North Platte to the top of the divide, on July 5 he pushed into the Red Desert again.

This was a land of ruddy buttes and soil, unbounded sage, and patches of soda and alkali. A baleful wizard had blasted it with a curse, and handed it over to his genii and their spells. But antelope roamed here, and so did the Sioux, their eyes upon the stage line wending along the mountain bases to the south.

The devoted Browne and his equally devoted troopers had penetrated 100 miles when, at noon of July 23, 300 Sioux, riding to raid the stage line, pounced upon them. They managed to gain a little knoll, and there, dismounted, fought the good old-time fight of whites against reds from noon to night. They were nine against 300. It is but one of many such stories, the majority yet untold.

At dusk Browne was shot through the stomach. By repeated charges the Sioux succeeded in stampeding all the horses; they began to draw off; Browne begged the soldiers to leave him and make for the stage line, by darkness. They refused, manufactured a litter from their carbines and a blanket, and carried him the fifteen

miles through the brush to LaClede Station of the Overland Stage. And here he died.

Upon the Union Pacific in the Laramie Plains, east of old Fort Fred Steele and the North Platte River, there is a small station named Percy. Historians have ascribed it to a mythical Colonel Percy of the army who died hereabouts, victim of the Sioux. It is a far cry from Percy station to Bitter Creek, and a farther cry from Percy Browne of the survey to a Colonel Percy of the army. The mirage of distance has trifled with events. Percy Browne died in line of duty. His name lives.

" Those who knew him best can best appreciate how great is his loss," appealed his friend and associate, Engineer Appleton; " a man without a blemish."

General Dodge met the now rather demoralized main party under Assistant Engineer Francis E. Appleton west of the North Platte River—" unable to go on for want of water, with their horses gone, their escorts used up, and apparently with no alternative but to back out of the country that Browne was killed in while endeavoring to get a line through. They were, however, in good spirits, and I had no doubt could soon be put on their feet again."

He aided in reconstructing the party, commissioned young Appleton as chief of it, and pressed ahead. General Rawlins was gaining considerable accurate information upon the difficulties attending the advance of the Pacific Railway. He speedily acquired more.

Near present Creston in the same treacherous Red Basin they encountered the Thomas H. Bates survey party, for whom General Dodge was anxiously looking. Bates was trying desperately to get out, by running a compass line due east, regardless; had suffered thirst for three days; had been driven to the supply from a poisonous lake, which had almost killed several of his men and escort; was abandoning his teams and mounts, and struggling forward, with his party crawling upon hands and knees, their tongues black.

The rescue company at first had mistaken the party for sneaking Indians, and reached the straggling column, after due caution, only in time.

So much, and little indeed, touching upon the danger trail of the surveyors; but to which might be added the adventures of the F. S. Hodges party in the spring of 1868 among the fastnesses of the Wasatch, when they were blocked for two weeks straight by the rains and snows; when on May 27 they upset their remaining wagons in eight feet of snow; lost all their packs in the crossing of a mountain freshet, drowned four mules by a cave-in of a mountain trail, barely saved several of the men, and, stripped completely of wagons and animals and supplies, broke for lower country and the haven of Salt Lake.[1]

So much, however, for the scouts in the advance.

[1] Mr. Hodges is one of the assistant engineering chiefs of building days who rounded out the half-century to the semi-centennial year, 1919.

Behind them followed upon their trail the sappers—the graders, living in their "prairie monitors" as they termed the low dug-out mounds; delving and scraping and shovelling, sometimes guarded by a cavalry or infantry detachment temporarily camped nearby, but more frequently unprotected by any visible presence save themselves and the Springfields, Spencers and Remingtons stacked near.

The Indians soon learned the wisdom of contenting themselves with the grading stock, and of foregoing the more hazardous booty of scalps. These rough-and-readies never had the slightest objection to a fracas; they were prone to joke and fight each other, but were more prompt to turn joke and weapons upon the common enemy from without. The orders to surveyors, graders, bridge and tie men were "never to run when attacked."

End o' track, and the construction and supply trains plying thereto, were the favorite attractions for the plains warriors. The hottest operations occurred in Nebraska, when the tracks had passed Fort Kearney, one hundred and ninety miles out.

The work trains and freights were forts on wheels: the box-car quarters of the section men and other laborers were doubly walled, with sand for a packing; so were the cabooses of the freights. They were well supplied with rifles and muskets, and in the early passenger cars the rifle was as familiar as the wrecking axe that has persisted to this day. General Dodge's

private car was, as he styled it, a " travelling arsenal." Engineer and fireman had guns within quick reach in the cab; brakemen wore their revolvers with as much ease as they wore gloves.

The United States commissioners sometimes took a hand in the *mêlées*. General J. H. Simpson, of the engineer corps of the army; Congressman W. M. White, and General Frank P. Blair, of journalistic and political fame, were going out with General Dodge to inspect the last completed section beyond Kearney, and witnessed the Cheyennes fall upon the grading camp right within sound of end o' track and only five miles from the post of the military guard. They proved their soldier training by running to the Dodge car for guns and joining in the charge.

This Plum Creek vicinity, opposite the stage station of the same name and about halfway between Omaha and the Colorado border, for one reason and another (principally because a main lodge-trail here crossed the Platte) invited the Indians as a feasible point upon which to focus.

Here it was that Dodge, returning from the front in his car attached to a train bearing a number of discharged workmen, was stopped by the telegraphed word that down track a freight had run into Indian trouble, had been set afire and was stalled, surrounded by the shrieking, volleying reds.

Acting decisively, sometimes the trains were enabled to dash through the Indian cavalry, and vomiting

stream and ball leave pursuit behind. This was one occasion when numbers had told.

The general delivered rapid orders, rallied the train crew and the discharged laborers, discovered that every one obeyed the order "Fall in," and proceeded carefully to the scene, deployed his force as skirmishers, and retook the train, or what was left of it.

"They went forward as steadily and in as good order as we had seen the old soldiers climb the face of Kenesaw under fire," he praised, as quoted in a preceding chapter.

It was near Plum Creek that occurred, also, the Plum Creek Massacre in the summer of 1867.

End o' track was then 450 miles out, and into present Wyoming. Plum Creek itself is some 230 miles from Omaha. Therefore the Indian attack was made upon established traffic. Heretofore the Sioux and Cheyennes had confined themselves to wild essays such as racing the engine and peppering the cab and boiler and the caboose, and to the wilder prank of stretching a hide rope, from pony to pony, across the track, in the anticipation of stopping the iron horse short. This scheme worked disaster to the rope-holders.

But at dusk Tuesday, August 6, a party of Chief Turkey Leg's Cheyennes accomplished the first real railroad wreck ever achieved by Indians. The only wonder is that there have not been more of them.

Porcupine, the Cheyenne who related the event to George Bird Grinnell, says that this was the first time

any of them had seen a railroad track. From a distance they watched the white man's curious wagons passing back and forth; then they went down to inspect the trail and found the iron rails.

They were feeling bitter and poor, because the soldiers had been chasing them. And they reasoned, with that childlike innocence which covers a multitude of sins:

"In these big wagons that go on this metal road there must be things that are valuable—perhaps clothing. If we could throw these wagons off the iron they run on and break them open, we should find out what was in them and could take whatever might be useful to us."

Therefore—

"We got a big stick, and just before sundown one day tied it to the rails and sat down to watch and see what would happen." [2]

This was at a dry ravine four miles west of Plum Creek. The Indians had fastened the tie to the rails with telegraph wire, and at nine o'clock William Thompson, head lineman, and five of his repair crew were sent out of Plum Creek on a hand-car to investigate the break.

The Cheyennes had built a fire, for comfort, and were complacently waiting to "see what would happen." It did. They heard a rumbling in the darkness, and they might glimpse "a small thing coming with some-

[2] Grinnell's "The Fighting Cheyennes." Scribner's, 1912.

thing on it that moved up and down." The hand-car men saw the fire, when too late to stop saw the forms of Indians rising on either side, and at full speed jumped.

The car struck the tie, turned somersault and landed halfway down the ravine. The six men had dived, sprawling, in all directions; gained their feet and tried to escape.

A mounted Cheyenne chased Thompson and called upon him to halt; then shot him through the right arm and, still pursuing, knocked him down with the butt of the rifle; stabbed him through the neck and began to scalp him.

Thompson bore the operation without the anæsthesia of unconsciousness. He desired to yell, but dared not utter a sound. "It felt as if the whole top of my head was taken right off," he deplored to the newspaper correspondent Henry M. Stanley, in Omaha, later. Having obtained the prize, the Indian galloped away, but the scalp slipped from his belt. Thompson scuttled after and got it, in the hope that it might be made to grow in place again. He heard nothing but groans from his comrades.

The success of their experiment emboldened the Cheyennes to try farther. They had discovered that the iron trail was not invulnerable. Now they busied themselves by firelight; with poles pried the end of a pair of rails from the chairs, bent them upward, and piling more ties again waited. Two westbound freights were coming; the first in charge of Engineer Brookes Bowers

(popularly known as "Bully Brookes"), Fireman Gregory Henshaw (who wore the title "Drummer Boy of the Rappahannock" in mistaken tribute to the Civil War's youthful Hendershot), Conductor William Kinney, Brakemen Fred Lewis and "extra" Charles Ratcliffe.

The Kinney train endeavored to run by at twenty-five miles an hour. It was derailed in a twinkling. The engine leaped from the tracks, dragging with it the tender and five cars, including two flat-cars loaded with brick. The two flat-cars were catapulted clear over the locomotive, and scattered their bricks forty feet in advance; the box-cars piled on top of the locomotive, and the mass caught fire.

Fireman Henshaw had been in the act of stuffing the firebox with wood. He was thrown against the ruddy furnace and roasted alive. Engineer Bowers was hurled through the cab window; the throttle handle cut his abdomen open, and he sat amidst the débris, holding his entrails in with his fingers.

The delighted Indians pranced around the funeral pyre, yelling and laughing and now and then shooting into the caboose, still on the rails.

All this the scalped and sickening Thompson saw, by the light of the mounting flames.

There were brave men in the caboose. The Indians clustered at the wreck before; Conductor Kinney and the two brakemen and an ex-fireman who was dead-heading west piled out into the shadows.

"Go and flag that train behind," ordered Kinney of Lewis.

"I don't dare. The Injuns are all around," pleaded the brakeman.

"Damn the Indians!" Kinney rapped. "Somebody flag that train or she'll be into us."

Whereupon he started at a run, himself, down track, with his lantern; Lewis and the deadhead pelted after; the lanterns bobbed rapidly, signalling of the sprint. Ratcliffe, left alone, hid under the caboose.

In a few minutes he saw the legs of an Indian who was investigating alongside. He crawled out, opposite, and scurried for safety. The weeds cracked in his trail and away he ran, spurred by the sounds of pursuit. He sighted the headlight of the oncoming freight, a mile distant down track. He glanced behind and saw his pursuers—two dusky forms. It was going to be nip and tuck.

The figures of the three trainmen—Kinney, Lewis and the other—were outlined against the glare of the headlight. The panting Ratcliffe heard the blasts of the whistle, calling for the brakes. The train was grinding, and the engineer was leaning from his cab.

Ratcliffe shouted his best, hoping and yet almost hopeless. The pursuit still clung to his very heels, and his back twitched in expectation of a knife blow. He was tortured also by the fear that the engine would reverse at once and back out and leave him to his death. But his shout was answered, the two Indians shrank

from the headlight, he lunged in, breathless, was caught up, hoisted aboard, and there sank down to laugh and cry hysterically as the train gathered speed in retreat to Plum Creek.

The operator at Plum Creek telegraphed to Omaha. Omaha headquarters replied brusquely with the train orders: "Get out of the way as soon as possible."

All the little population of affrighted Plum Creek station, except the plucky operator, boarded the freight for the safety of Elm Creek station, eighteen miles east. The exultant Indians were likely to raid right and left.

Up track, at the wreck, Lineman Thompson was witnessing a scene infernal, eclipsing any Doré canvas. The engineer had been shot and scalped and his body thrown into the fire. The bursting box-cars were being plundered. It was a rich train. "Bales of calico, cottons, boxes of tobacco, sacks of flour, sugar, coffee, boots, shoes, bonnets, hats, saddles, ribbons, velvets"—these were hauled about and scattered broadcast.

The figures of the Indians grew more and more grotesque as from imps they were transformed to demons. Ribbons fluttered from scalplocks, braids, breech-clouts, and from the manes and tails of the ponies. Women's bonnets moved rakishly hither-thither. Gaudy calicos and strips of velvet were worn toga-like; and whole bolts of cloth unrolled from the tails of galloping horses while impromptu races were staged, in which warriors tried to run each other down and tear the bolts loose.

A barrel of whiskey had been broached. Having gorged themselves with the spoils, the Indians bore firebrands from car to car. Speedily the whole train was a mass of roaring flames, with the drunken savages encircling in a furious dance.

The saturnalia was scarcely abated when, toward daylight, the wretched Thompson had crawled and staggered away, for Willow Island, fifteen miles west, arriving with his rag of a scalp in his hand.

The Plum Creek refugees returned in the morning. With a spyglass they might see the Cheyennes rioting around the smouldering wreck, racing and chasing while from the bluff another party watched.

Traffic was paralyzed. The wires were down, west. Old Fort Kearney was being dismantled. It had a garrison of twelve infantrymen and a band as caretakers. McPherson's cavalry and most of its infantry were distributed west on scout duty. By Overland telegraph word was sent from Omaha to Sedgwick at old Julesburg for the Major North Pawnees to hustle in from beyond end o' track, 250 miles.

The day passed. Toward evening the Cheyennes were clearing out, bearing their plunder. The Plum Creek people ventured to the scene. The Pawnees arrived, eager for the fight, and set out upon the trail.

The remains of Engineer Bowers and Fireman Henshaw were taken to Omaha. They were contained in two small boxes thirty inches by twelve, and weighed, together, about thirty pounds. Correspondent Henry

M. Stanley, who had been detailed by the *Missouri Democrat* to accompany the United States "peace commission" into the plains, was here, and inspected.

Lineman Thompson also appeared, with his scalp in a pail of water to keep it moist. It was nine inches long and four inches wide, and as it floated about, curled up, it looked like a drowned rat. Doctors Pecke and R. C. Moore were very certain that they could make it grow fast upon Thompson's head; but they never did. He took it with him, as loose baggage, to England; later returned it as a gift for Doctor Moore, who presented it to the Omaha Public Library Museum, where it long was on exhibition in a jar of alcohol.

Viewing it, people might try to conjure up that scene, now fifty years ago, witnessed by the scalp's original owner, there just west of little Plum Creek station, central Nebraska, when the first transcontinental railway was building onward.

The Sioux took a hand. In April, the next year, their bandit Dog Soldiers surprised Elm Creek east of Plum Creek, killing five section men, and ran off the station stock. On the same day other Sioux attacked thriving Sidney, 414 miles from Omaha but short of end o' track and the front by 150 miles.

Two freight conductors, Tom Cahoon and William Edmundson, were fishing in Lodge Pole Creek, a mile and a half out. They heard the shooting, and climbed up the creek bank to gaze. Several Sioux sighted them, and raced to cut them off from the station.

Cahoon was shot down and scalped and left. Conductor Edmundson made a running fight, holding the enemy off with a small derringer. He arrived with four arrows in him as guarantee of his close call. Other wounds are mentioned—a half dozen.

He recovered. Cahoon likewise recovered later; was promoted to passenger conductor, ran on one of the first two trains out of Ogden when the regular schedule had been established after the completion of the through line; retired to locate in Ogden, where a street is named for him; and always wore his hat "well to the rear of his head," where there was a peculiar "bare spot."

In September of this year 1868 the Sioux imitated the Cheyennes by wrecking a mixed train between Alkali and Ogalalla, in Nebraska again, some 330 miles from Omaha. They bent up a pair of rails; the ends pierced the engine's boiler, the steam spurted out, and by the steam and the firebox the fireman was cooked. The other trainmen and the few passengers (among them the brave Father Ryan, a Roman Catholic priest of Columbus, who was nothing loth to fight the devil), seized arms and stood the Indians off until a wrecking train pulled in.

This October Potter Station, eighteen miles west of Sidney, was rushed, the section hands driven under cover, and twenty head of horses and mules stampeded.

The fragmentary records are altogether inadequate to the purpose of depicting the danger trail upon which

the heroes of transit and level, throttle and brake and key, repeated the deeds done by those preceding heroes, the knights of the goad, the "ribbons" and the pony-express saddle. And, forsooth, it was a toss-up also between the security of the trail itself and of the traders' camps.

No placid Chinamen, these. There they were, 500 booted, flannel-shirted, hard-fisted, hairy-chested, sweat-drained men, at a time: Mike, Pat, Tom, Dick and Harry, gathered from city and town, camp and steerage, rank and file dog-tired by Saturday night, removed from all amusements save in their own devices, but lustily fed upon red beef and strong tea and coffee, ripe for the whiskey and with plenty of it supplied by the solicitous peddlers.

Rarely a Sunday morning here, and likewise in the tie camps of the mountains, that did not casually note a corpse or two dragged to hasty burial with its boots on—unless the boots had already been appropriated. The Roaring Towns were not the only rendezvous with death that demanded a toll of "one a night."

Pneumonia stalked. The construction proper laid its tax, levied by sunstroke, freezing, poisoning, drowning, and relaxed only after the "Iron Horse Man," bossing the distribution of the hurrying rails, fell between the ties of the trestle at Corinne beyond Ogden, into the swollen Bear River. Whether anybody sought for him history does not state. The track sped on to the meeting.

IX

The "Roaring" Towns

The fourteen new Episcopal churches of the beginnings on the plains, the newly commercialized old mining-camps of the Sierra in the west, the water tank, the furrow, the greening of barren ground, the smoke from contented hearths and the voices of pulsating trade were not alone the tokens planted by the footsteps of the Pacific Railway. Flotsam and jetsam were strewed in its wake. Evil pioneered in rivalry with good while the Union Pacific van swept on, and while yonder, over toward the California border range, the Central was stringing the Nevada desert with another row of beads.

There were, then, those recurrent stations of greed, the "roaring town" terminal points—each a brief supply quarters from which end o' track was fed with iron ammunition and stimulus for man and beast until, 100 or so miles out, Jack Casement or Charles Crocker stamped his foot and another thistle burst into full bloom from some seed waiting in the apparently sterile soil.

Upon the Central Pacific mountain and desert trail which when first projected might sight only one white man along its route of 575 miles from the California boundary to central Utah, there flourished, for heyday long or short, the terminal bases of Cisco, Truckee,

Lakes Crossing, rechristened Reno, Wadsworth, Humboldt, Lovelocks, Winnemucca of French Ford, Argenta, Carlin, Elko, Wells, Toano—semicolons of the railroad history. Upon the Union Pacific trail, where for 400 miles at a stretch the rails needs must bring their own company with them, there burst upon the astonished sunrises North Platte, Julesburg, Sidney, Cheyenne, Laramie, Benton, Bryan, Green River, Wasatch, Corinne, Promontory Point. And these were the epitome of "roaring towns" whose like has been matched only by a Virginia City, a Deadwood, a Dodge City, a Leadville.

"Hell on Wheels" was the title accorded them; whether reported first by Journalist Samuel Bowles, their observer in 1868, is not stated, but at any rate the phrase has come down uncensored, as a current coinage of the day. They successively irrupted along the Union Pacific like malignant sores upon the surface of a hectic westward-hurrying civilization, only to disappear again or form into healthy flesh. They were a phenomenon.

When in the spring of 1866 the transcontinental railway, flying the flag of the Union Pacific, headed out of Frémont, the only town in the horizon was Columbus, forty-five miles; when in the early summer it drew Columbus across the river to it, and the new centre of the United States had been proclaimed by George Francis Train, only Grand Island settlement broke the distance before; Grand Island moved to the

glamour of the rails like steel to the magnet; and the squatter sovereignty of old Fort Kearney waited.

Kearney was the second of the terminal bases out of Omaha. When it had been put behind, everything before was still in the seed envelope, clear to the stage cross-roads settlement of Julesburg, 200 miles.

On November 1, 1866, at the 100-mile point west of Kearney there was only the suburbs of a prairie-dog town; populous but unsophisticated. By November 22 there was the city of North Platte, 290 miles out on the plains but only five days by mail from New York: the future metropolis of North Platte, noisy with hammer and saw and the bustle of 1000 people—big with twenty buildings, including a brick roundhouse calculated for forty engines and already accommodating ten; a water tank of "beautiful proportions"; a frame depot, also beautiful; the Railroad House hotel that should cost $18,000; Casement brothers' famous portable quarters comprising warehouse, eating-house and general store; and mercantile establishments wet and dry, and dwellings of various degrees.

North Platte City swelled apace this fall and winter, as the railroad supplies poured in preparatory for the spring drive; as the idle laborers tarried, and as the real estate speculators, the merchant adventurers, the liquor dealers and the blacklegs of Chicago, Omaha and St. Louis hastened to the harvest.

Everything and everybody bound westward stopped here *en route:* Mormon emigrants, Idaho settlers, Mon-

tana gold-seekers, Overland travellers waiting for a seat in the stage to Denver and Salt Lake; plains-and-mountains freighting outfits by the dozens, their hundreds of unshaven bullwhackers ruffling through the streets; gamblers of North, South and East revelling in "flush times" come again; soldiers, remittance men, second sons; down-at-the-heel lawyers, doctors, clergymen, in the guise of jacks-of-all-trades; and tenderfeet plunged into the glamour cast by swagger of body and display of holstered belt. Every building seemed to house a saloon, and every saloon was a den.

In May there were 15,000 tons of Government freight piled up, demanding transportation; 1200 wagons and 800 teamsters were encamped around. In the straggling town the cappers barked, the Colonel Sellers orated, the seething 5000 citizens roared like 10,000, and the bluffs along the river echoed. Six weeks thereafter and booming North Platte had shriveled as if blighted prematurely by a fervor of fast living. From 5000 it had shrunk to less than 500; for all its fatness was festering at new Julesburg, the next terminal point. But North Platte did not die; there it is, purged and reformed and well-to-do, its wild oats sowed, reaped and forgotten.

Julesburg had been founded, the third of its name; 377 miles out, as removed from the stage line south of the South Platte to squat beside the rails and brag of its well-earned title, "The Wickedest City in America." What a fresh nucleus of the bizarre and vice rampant

this was, where North Platte experience joined forces with Denver's, and all the hard-bitten tail-twisters of old Julesburg (toughest of Overland stage stations) migrated, jealous of opportunities!

In June new Julesburg had a population of forty men and one woman. By the end of July it had 4000 transient residents. Town lots, staked off by the land agent of the railroad, were selling at $1000. The streets, ankle deep in sand, were lined by warehouses, saloons, gambling joints, and stores piled with goods fresh from New York and Chicago. The people trudged, laughed, whooped, bargained, joked and cursed and shot, in the exuberance of life at high tide: soldiers, teamsters, graders, merchants, clerks, gamblers, tourists; the "expensive luxuries" of women in Black Crook dresses, with fancy derringers daintily dangling at their ribbon and rattlesnake-skin belts; Mexicans, Indians, half-breeds, horses, oxen and dogs—all these swirled in this eddy of the northern plains.

The "upper-tendom of sinful Julesburg," as young Henry M. Stanley called them, dined at the Julesburg House, selecting from a menu of "soups, *fricandeaus,* vegetables, game in abundance, pies, puddings, raisins, apples, nuts, wine and bread at discretion for the moderate sum of twelve bits."

By their gold watches and expensive chains, their modish clothes and their patent-leather boots, he thought them to be capitalists, and was amazed to find

that they "were only clerks, ticket agents, conductors, engineers" and the like.

At night the great dance hall, "King of the Hills," was ablaze with the brightest of lights; the strains of music, the shuffle of feet, the clamor of voices, almost deafened. Along the shallow Platte, beyond the kerosene-illuminated streets, myriad camp-fires twinkled. In the mornings the customary dead man was buried.

The Union Pacific had laid out the town. The gamblers and gunmen anticipated owning it cheaply, for a human life was worth less than a bottle of wine. When on the survey west of Salt Lake City General Dodge heard of the defiance to law and order, he wired General Jack Casement to go back with his track force and help the officers.

In the fall they visited Julesburg together. General Casement acted as guide.

"What did you do, General?"

"I will show you," he said.

He led straight to the graveyard, and indicated by a wave of his hand.

"There they are, General. They died with their boots on, but they brought peace."

Peace indeed! There was nothing else here. Of all the "roaring" town of Julesburg, Wickedest City in America, there remained only the graveyard, the station agent, heaps of tin cans, and the undisturbed prairie dogs and ground owls. After its five months'

existence, like a May-fly Julesburg had dried up. Its progeny had folded their tents and departed.

Cheyenne, "Magic City of the Plains," was booming, 140 miles westward again. Hell on Wheels had hit the trail, amazing the sage and the very heavens.

Casement brothers' portable warehouse, store and dining-room; all the other knock-down contraptions of canvas, rough lumber, and sheet-iron; the imitation stucco-front buildings, collapsible into sections numbered with the convenience of a pack of cards; the gamblers' lay-outs, the saloon bars, the merchants' counters and desks, the various commodities of trade and housekeeping—all these, accompanied by owners and employes, had been loaded upon flat-cars for the next end of creation. And up the trail wended horse, buggy, wagon and foot—man, woman and child astride, atop, within, without, dust-drenched, expectant, cheering, peering, following the pay-car to Cheyenne.

Midway, depleted Sidney sat, a minor quantity. Who cared for Sidney and its pretentions as a terminus when Cheyenne awaited?

Cheyenne, located by General Dodge July 4 here upon the dun flatness in a bend of Crow Creek, at an elevation of 6000 feet, already was accoutred complete, from spurs to helm; had a city government duly elected, two daily papers, 4000 people, and a brass band with which to welcome the first influx on November 13.

Town lots sold by the railroad company at $250 were being resold at $3500. The post-office was ten

by fifteen feet, the Headquarters Saloon thirty-six by 100 feet. A store building fifty-five by twenty-five feet, of rough lumber from Denver, had been erected in forty-eight hours. There were two two-story hotels—the Rollins House hostelry catered to only the élite, including Chief Spotted Tail and Mrs. Spotted Tail, recent arrivals "in our midst." There were the Great Western mammoth corral, three banks, a stone warehouse costing $20,000, 100 saloons, gambling joints, dance halls, a medley of shanties, dug-outs and tents, a town site of four sections of land, a military reservation four miles square, and a "man for breakfast" every morning.

Great was Cheyenne, the Magic City and the winter terminus of the Pacific Railway on the plains. Before spring it was headquarters for 10,000 men and women of all degrees, and the *entrepôt* for all degrees of business. Every known gambling device was in lucrative operation, and legitimate merchants themselves reaped at the rate of $30,000 a month.

The value of the city scrip had been raised eighteen cents on the dollar by Magistrate Colonel Murrin, who required every man who had indulged in a gun-play to pay a fine of $10 "whether he hit or missed." The city treasury was plethoric.

"Your fine is ten dollars and two bits."

"Yes, your Honor; but what's the two bits for?"

"To buy your honorable judge a drink in the morning."

Thus Cheyenne made its hay while the sun of fortune shone and mindless of warning wafted westward from the graveyards of certain other once "Great and Growing Cities": cities upsprung from the desert, full equipped for business and pleasure, with ready-made aristocracy, commoners, old settlers, first families and newcomers, hotels, restaurants, drink palaces and hearth-stones; now reduced to "a few piles of straw and brick with *débris* of oyster cans nearly covered by the shifting sands."

In Cheyenne the Vigilance Committee arose; the military of General J. D. Stevenson marched down from Fort Russell; culprits were paraded, criminals hoisted. Life ceased to boil, and only simmered. In April 1000 grading teams toiled out for Sherman Summit and beyond. Five thousand chastened graders and track-layers followed. In May Hell on Wheels was rolling again into the west; and with its 10,000 souls concentrated to 1500, Cheyenne (lucky at that) settled down to be a "quiet and moral burg."

On to Laramie, "Gem City of the Mountains," next terminal point of the Pacific Railway. When in April the land agent of the Union Pacific arrived as the harbinger of prosperity for the Laramie Plains, 200 people, in wagons, tents, sod-roofed dug-outs and railroad-tie cabins were camped upon the very spot. Four hundred town lots were sold in the first week; 500 ambitious tenements of business, home and pleasure materialized in the first fortnight.

May 9 end o' track entered; May 10 passengers and freight and the wheeled inferno entered. The rakes, touts, cappers, dram venders, three-card-monte men and poker kings, their shrill-voiced painted consorts and all the other North Platte-Julesburg-Sidney-Cheyenne froth and dregs settled like locusts upon new Laramie. Tie-cutters, Black Hills prospectors and soldiers from Fort Sanders were overwhelmed by the sudden founts of high carnival widely opened.

The big-game heads, the agates, opals, and mountain amethysts and rubies heaped in the show-case of the station eating-house were the feeblest of the lures for incoming tourists; the great water-tank and its wind-mill seventy-five feet high, on a base twenty-five by fifteen feet—the sparkling streams of water flowing down the principal streets, failed to wash away the sins of Laramie and the major portion of its 5000 people, until the Vigilantes helped.

For three happy months Laramie roared; within six months it had passed the sear and yellow-leaf stage. History had been repeated, the farther erstwhile solitudes had conceived, in turn, and out of unholy alliance with some cockatrice the changeling Benton had been cast.

Hell on Wheels had moved there in July. A fortnight of influx bloated the new terminus to 3000 human beings, swirling and jostling, working, playing, dicing with the fates, here on the edge of the Red Desert, 700 miles from Omaha, 300 from Salt Lake.

"Far as they could see around the town not a green tree, shrub, or spear of grass was to be seen; the red hills, scorched and bare as if blasted by the lightnings of an angry God, bounded the white basin on the north and east, while to the south and west spread the gray desert till it was interrupted by another range of the red and yellow hills. All seemed sacred to the genius of drought and desolation."

It was stage terminus, freighting terminus, railroad terminus, and the terminus of many a life. Water was hauled three miles from the North Platte River; price $1 a barrel, ten cents a bucket. The streets were eight inches deep with white dust, the low buildings and the tent and brush shacks resembled banks of dirty lime; a man in black clothes looked like a cockroach struggling through a flour barrel.

The mule-skinner, the miner, the gambler, the Cyprian brushed sleeves with the merchant, the soldier, the tenderfoot and the Eastern tourist. Twenty-three saloons and five dance halls wooed to relaxation; the monte dealer called incessantly "Watch the ace"; for half a dollar a throw one might win the $300 gold watch and chain on No. 6 square of the chuck-a-luck board (but never did), and just across the street sounded the hoarse appeal: "Come down here now, you rondo-coolo sports, and give us a bet."

At night the Big Tent, 100 feet long and forty feet wide, summoned the populace to its floor, its

mirrored Eastern bar, its monte, keno, faro, rondo-coolo, chuck-a-luck and poker straight.

Life and nothing else was cheap at Benton; time itself was precious, space, in this 100 miles of desolation, was dear. The wholesale liquor dealers in a canvas establishment twenty by forty feet booked $30,000 a month, at 80 per cent. profit—and felt discomfited by the sales of rival enterprises. The red-brick and brownstone-front buildings of painted pine, shipped from Chicago at $300 delivered, mocked the senses; half a dozen men could erect a business block in a day, two boys with screwdrivers could put up a fancy dwelling in three hours. Civilization was improving its facilities.

In sixty days all that remained of ebullient Benton was a few iron barrel-hoops, a few perforated tin cans, a few crooked mud chimneys, a few warped poles like Indian scaffolds, and about 100 nameless graves.

Rawlins, next station, had absorbed the best of Benton; the worst had been properly acclimated by the military and the Vigilantes or had trekked to Green River City, another 140 miles.

Green River City, at the western edge of the desert country, was sure to boom. Former Mayor Hook, of Cheyenne, the Magic City's first executive, had founded it. He had crossed Twenty-Mile Desert, Red Sand Desert, White Desert, Bitter Creek Desert—all those forsaken stretches where mules succumbed to heat by day and at night shivered in a temperature that formed

a quarter of an inch of ice on the hoarded water—had outguessed the railroad and staked a terminal point in advance.

The grade burst through and carried the graders with it. The Casement Paddies charged to the river's brink in September. Two thousand people, permanent adobe buildings, and law and order greeted them; but so did a bridge. General Casement scarcely tarried. It was the fall of 1868, and he was due at Ogden upon January 1. The rails found the bridge, passed over and on; so did Green River City and a Hell on Wheels much diminished.

Of Green River City there remained the adobe walls, their empty windows gaping in astonishment.

Bryan, thirteen miles, proved to be the real terminal base for the iron and the Casement Brothers' faithful warehouse. But the pace had waxed too swift for the flotsam and jetsam drawn into the current. Cheyenne had roared like a lion, Benton laughed like a hyena, Bryan only blatted. And yet it was tough enough while it lasted; the essence of the long back trail drifted to it, and the Bad Man from Bitter Creek cavorted with joints somewhat stiffened.

"We'll give you fifteen minutes to leave town," proffered the Vigilantes. "There's your mule."

"Gentlemen, I thank you," he replied. "If this damn mule don't buck I don't want but five."

Casement Brothers' portable warehouse tarried only briefly even at Bryan. The rails climbed to Wasatch.

With one saloon, one store, a telegraph station and a handful of shacks Bryan was left to meditate amidst the sage and greasewood over what might have been. To-day knows it not.

Wasatch, 7000 feet up, 966 miles from Omaha, had won the plum of winter terminus. Eastward and below, clear to North Platte of Nebraska, 675 miles, were strewn at intervals the deflated carcasses of its once joyous predecessors. Some were past resuscitating, others were only taking breath. Now, up here, Wasatch hustled. Four thousand lusty graders and track-layers and trainmen and clerks required hospitality. In the regulation fortnight 1500 persons gathered to do the honors and reap reward.

In the week of January when the travelling scribe and amateur mule-skinner Beadle was there, and the thermometer never rose above three below zero, the saw and hammer plied incessantly day and night.

The tables were spread in the eating-houses before the weather-boarding was on. Beadle ate breakfast at the California Hotel in a temperature of five below, while enabled to view the snowy landscape through cracks in the walls an inch wide.

For three winter months Wasatch lived the life and saw the death. It established a record of which it was not ashamed, for a community snowed in to the eaves of the shacks and deprived of imported amusements. Of the forty-three occupants of its new graveyard, only five had "died natural." Three of these had

frozen to death while drunk; one, a girl, had inhaled charcoal fumes, and the other girl, chloroform.

Wasatch subsided to the rôle of meal station; eventually its table was removed to Evanston, 11 miles east, and to-day Wasatch the gateway station into Utah is perfectly safe for even the veriest tenderfoot.

The track tore loose from winter and on into Ogden March 3. On March 25 Corinne (pretty name), at the north end of the Salt Lake, thirty-one miles from Ogden, was opened for business—any kind of business.

By the Mormons Corinne, as the only strictly Gentile settlement amidst the Latter-Day Saints, was looked upon askance. The fate of Tyre, Sodom, Moab and Edom was freely predicted for it. But the Corinneans gazed onward and upward. To be the "Chicago of the Rocky Mountains," "Queen City of the Great Basin," rival of Salt Lake City and of Ogden—that was its destiny.

While endeavoring to fatten upon the short stay of the rails as they gathered force for the charge upon Promontory Ridge, it proclaimed its advantages. It had the navigable portion of the Bear River as a waterfront, the Salt Lake as a waterway, Montana and Idaho as tributary trade centres, and the transcontinental railroad ran "plumb" through it, connecting it with the East and the farther West.

It also had needful rest and recreation for the tourist and the tired railroad men: to wit, nineteen saloons, two dance-halls and eighty syrens, commonly called

"girls." Weekdays the enthusiastic citizens declaimed from dry-goods boxes by bonfire light upon topics calculated to make for the future of Corinne. Sunday was devoted to the present, for then the construction men came in from end o' track. Most of the male citizens went hunting or fishing (says Beadle, as editor of the Corinne *Reporter*); and the "girls" had a dance or got drunk. As open-air entertainment there were dog-fights.

Corner lots rose from $200, $300, $500 to $1000, $2000, $3000. Many a Colonel Sellers exhausted his vocabulary of adjectives. Ten thousand people within two years: that was the slogan. Alas! in three months the "Chicago of the Rocky Mountains" had lost its floating population and was unaccountably down to 400 sobered residents. It is stronger to-day, but not yet the "Queen City of the Great Basin."

Meanwhile, the panting graders and track-layers had founded the camp of Blue Creek. They were making short spurts now. Blue Creek was only eighteen miles onward from Corinne, and a welcome breathing spot. Life in Blue Creek was not so gay as in Corinne, but more rapid. Twenty-eight killings occurred in thirty days. Nevertheless the amenities of polite society were rigorously observed. A man who appropriated an undue amount of gravy paid the ultimate reckoning at once, levied by the gun of another diner; and a stranger to such Western discipline who innocently attempted to leave the table was very properly disciplined by being compelled to finish out the meal.

Etiquette demands that in cow-camp, lumber-camp, sheep-camp and railroad camp one polish off one's plate.

Promontory town roared last but not least. As the junction of two great railroads, whither all the world should flock and where passengers from East and West be transferred, its future shone golden. It had thirty tent houses and one street; it had its drinking water, hauled only four miles; it had an eating house sixty feet long, purveying to some seventy-five graders, and occupied mainly by one table down the middle—the top of the table being used as a short-cut to seats by hob-nailed guests in a hurry. When the cook displeased they threatened to hang him.

It had its "Pacific Hotel" (fifteen by twenty feet), its "Club House" (with space but not membership limited), its "strap" game, its "patent lock" game, "ten-die" game and open-air monte. That remnant of Hell on Wheels which had persisted through the three years' journey from Nebraska was amply rewarded; at Promontory found another abiding place and a final grand halloo. Transcontinental tourists need never waste two hours here while waiting for connections.

These "roaring" towns which celebrated each successive stage of the march by the Pacific Railway westward across plains and deserts and mountains were unique. Some overcame their gambling spirit and settled down to legitimate prosperity; others, builded literally upon the sands, became of the sands, for they had staked their all in loaded dice.

Prosperous North Platte to-day betrays not the slightest tokens of its former wild hurly-burly. Another Julesburg—Julesburg IV—arose from the ashes of Julesburg III, but not upon the same dump. Sidney, Cheyenne, Laramie—there they are, the pupils of yesterday and the masters of to-morrow rather than the blind devotees of to-day. Benton and Bryan had no substance at all upon which to feed after the insight store of short pleasures and quick profits had showed bottom. A new Green River was born of better planning than the planning of the old. The Lucin cut-off of the transcontinental left Corinne, Blue Creek and Promontory to industry no longer dependent upon the chance traveller and the roisterer.

There have been many other "roaring" towns and boom towns, in the advance of the nation's prosperity. Gold and silver, oil and wheat, fathered them, speculation fed them; but none went the pace of Julesburg and Benton—the San Francisco of Sunday, the ages-dead Thebes of Monday, with no Bret Harte to record their crowded page of joys and sorrows, hopes and fears, their crimes, charities, and fantasies in gamut ranging through every human emotion.

On the other hand, the Central's Chinamen proved to be poor material for speculative practices. They drank not, they gambled only among themselves, they toiled but they did not spin; they offered no inducements to whiskey peddlers and monte men. The Missouri River border had its eyes turned westward, its

mind inflamed by the projects of land agents, town boomers, and the *ignes fatui* of the transient schemes all fostered by the transition from stage coach to railroad coach, from red rule to white rule. The California end of the transcontinental already was of the West. Californians were satisfied with their own precincts; Nevada promised only mines, and the trend of population was toward, and not from, California.

The thought of the Central focussed principally upon getting the road through the barren stretch to the producing goal in the Salt Lake Valley. Virginia City failed to contribute as anticipated; beyond the connection with Virginia, nothing material could be expected in the way of traffic for 500 miles. So without any accompaniment seeking prosperity and without any tendency to foster instant centres of new population, Charles Crocker and his assistant Strobridge travelled a trail of law, order and determination, their wheeled town being a town of their own, strictly limited and as far as possible whiskeyless, cardless, viceless.

They were their own vigilantes also, protecting the employes from the inroads by the hopeful. This occasionally brought suits and threats of reprisal; but rarely has a railroad, building through a lawless region, contributed so little to the spoils of civilization.

Cisco was founded; might have been a Wasatch but never has been. California had flung its fling ten years before, had drained the hill cup of riotous living

and was pursuing greed in Nevada. Cisco prospered with 7000 people devoted to lumbering, staging and grading, and of dissipations only reminiscent of Poker Flats and Hangtowns; when the construction crews moved on over, they left four hundred permanent residents, business educated.

Truckee began clean, with every building of bright new lumber, Lake Tahoe as an inspiration and industry assured. Present Reno, Wadsworth, have their annals of boom freighting days, but they did not roar like Benton, nor collapse through failure of breath. Humboldt flattened to eighty houses without a single occupant, but not through the railroad withdrawing the bung from its barrel; treasure fields distinct from the railroad called.

Winnemucca, Argenta, Carlin enjoyed their terminus boom; the road passed on and they did not chase it; they waited for something else to turn up and pinned faith to the desert prospector. Elko "roared" as a mining depot, simple though not pure.

The "fast town" of Elko, in the days of the White Pine mines excitement, close following but not connected with the rails: here upon the dreariest of deserts yet unwatered and unwashed, and sentinelled by the barest of grim ranges; with its Commercial Street and its Railroad Street and its Silver Street and inevitable Main Street, through which the alkali dust swirled furiously, and where an umbrella was the recognized trademark of the Eastern pilgrim; with its stores selling everything (excepting umbrellas) from a box of pills

to a bottle of champagne; with its medicated springs, outbidding the Carlsbads of Europe, supplemented by Ung Gen, Chinese doctor, "prepared to cure all diseases that may come to his notice"; with its Elko *Independent,* price twenty-five cents a copy; with its White Pine Saloon, wherein "the most delicate fancy drinks are compounded by skillful mixtologists in a style that captivates the public and makes them happy"; with its Paiutes, Diggers, Greasers, Mongolians, desert rats, stage-drivers, freighters and millionaires, its Wandering Jew in the person of the "wickedest man west of the Rocky Mountains," its long strings of pack mules, its dust-covered Concords, its tales of fortunes—all regardless of the rails that led now nobody particularly cared where. With its lumber at $100 a thousand, but with Chloride Flat, Yellow Jacket, the Eberhardt and such lodes, only 125 miles south, swelling the patronage from 400 to 20,000 in five months.

However, the Central Pacific of the transcontinental had gone on long before; had dropped an eating station named Toano; was preparing to lay its ten miles in a day and rest at Promontory, its trail peopled mainly by the quick and but sparsely by the dead.

X

TOURISTS TO END O' TRACK

"THE Union Pacific and overland excursion had become too common," laments the restless J. H. Beadle, Cincinnati *Commercial* man, in August, 1869. "Every man who could command the time and money was eager to make the trip, and everybody who could sling ink became correspondents."

Consequently he branched off for southern Utah—but, lo and behold, the Pacific Railway was in prospect once more even to him, for in September he was again *en route* westward to end o' track at the California coast. After all, there was nothing else to do.

As between the Union Pacific and the Central Pacific lines the California project was the one that received the first attention from travellers. Reference has already been made to the Fourth of July excursion run from Dutch Flat to Sacramento in 1865—antedating by four months the flat-car excursion upon the Union Pacific under the auspices of the hopeful Doctor Durant.

And reference had also been made to the Central excursion arranged for the Speaker Colfax party in August of the same year.

This distinguished party had left Atchison, Kansas—the Missouri River terminus of the thriving Over-

land Mail—May 22, outward bound in one of Ben Holladay's last stages, under soldier escort, for San Francisco, with stoppages along the way. The personnel, to wit, the Honorable Schuyler Colfax, five feet six, weight 140, age forty-two, six terms in Congress, "drinks no intoxicating liquors, smokes *à la* General Grant, is tough as a knot, was bred a printer and editor," of unbounded tact, tireless industry and no rough points—"some people talk of him for President"; Lieutenant-Governor William Bross of Illinois and the Chicago *Tribune* editorial staff, "hale and hearty in body and mind," simple, unaffected, enthusiastic, and sturdy in principles; Albert D. Richardson, of the Greeley *Tribune,* Civil War correspondent, Bohemian in tastes, but addicted to black broadcloth and "biled shirts," chews no tobacco, disdains whiskey but is a connoisseur of Catawba, "carries a good deal of baggage, does not know how to play poker," and as a young widower of thirty-five "shines brilliantly among the ladies"; Editor Samuel Bowles, of the scholarly *Springfield Republican,* that dean in the New England press—and he himself a stanch New Englander with a mind broadly receptive to the new West; George Otis, special agent for the Overland Stage Company, who as representative of the princely Holladay thus personally conducts the little company and amuses it with his ready puns.

They saw the gold mines of Colorado, the many wives of Utah, the silver lodes of Nevada, and in Cali-

fornia learned of turnips weighing twenty-six pounds, beets 118 pounds, and squashes 265 pounds. And they toured over the Central Pacific Railroad.

On the way out Editor Bowles had decided that the great bulk of the Pacific Railway (upon which all sign of progress was one small party of engineers, in Salt Lake City, who seemed to have lost their bearings), should be constructed in three years; the whole could be opened to travel in five years. He might safely have said four.

At Sacramento he and his companions were to exclaim over the progress of the western end of the building program which aroused from the Bowles pen the appeal to the East for an army of 50,000 picks and spades in 1867, 100,000 in 1868. That his appeal apparently may have had effect was proved to him upon his next trip out from the East, when in the summer of 1868, on the Wyoming desert, he "witnessed here the fabulous speed with which the railroad was being built" at last, and Governor Bross, again his companion, "with stalwart blows upon their spikes" helped to pin down the last rail of the Atlantic slope and the first rail of the Pacific slope.

But at Sacramento, in the summer of 1865——

"Ex-Governor Leland Stanford, president of the Central Pacific Railroad, and other gentlemen engaged in building it, were kind enough to organize a pleasant excursion," records Journalist Richardson.

This extended up the line to Colfax, fifty-five miles

("nearly to the summit of the Sierras"), and onward along the grade twelve miles by horse, around Cape Horn.

"The rugged mountains looked like stupendous ant-hills. They swarmed with Celestials, shovelling, wheeling, carting, drilling and blasting rocks and earth, while their dull moony eyes stared out from under immense basket hats, like umbrellas. At several dining-camps we saw hundreds sitting on the ground, eating soft-boiled rice with chop-sticks as fast as terrestrials could with soup-ladles."

By six-horse stage the excursion was continued from Gold Run, in a night trip to the summit (*en route* distributing mail to the survey camps) and on down three miles to Donner Lake—"blue, shining, and sprinkled with stars, while from the wooded hill beyond glared an Indian fire like a great fiendish eyeball."

From headquarters at the Lake House here the Easterners were shown the location line. In the evening, at the rude tavern—

"The candles lighted up a curious picture. The carpet was covered with maps, profiles and diagrams, held down at the edges by candlesticks to keep them from rolling up. On their knees were the president, directors and surveyors, creeping from one map to another, and earnestly discussing the plans of their magnificent enterprise. The ladies of our excursion were grouped around them silent and intent, assuming liveliest interest in the dry details about tunnels, grades,

excavations, 'making height' and 'getting down.' Outside the night wind moaned and shrieked, as if the Mountain Spirit resented this invasion of his ancient domain."

The first of the Union Pacific excursions, when in November Vice-President Durant, and General Sherman as special guest, toured the fifteen miles from Omaha to Salings Grove, sitting upon nail-kegs on a flat-car, was an humbler matter. This, however, was far eclipsed by the Great Pacific Railway Excursion of 1866 to celebrate the attainment of the 100th meridian, at the 247 mile-post, in 182 working days, or more than a year ahead of Federal requirements.

Consulting Engineer Silas Seymour himself wrote a very entertaining little story of that early grand tour up the Platte Valley—not for 247 miles but for a full 285.

Invitations had been sent by the company to the President of the United States, and his cabinet; to the foreign ministers, to the members of Congress, to the commanders of the army and navy, to the "principal railroad men and leading capitalists throughout the country." The railroads, steamboats and stages connecting Omaha and New York were placed at the disposal of the prospective guests.

The New York party, of 100 passengers, left on Monday evening, October 15, by the New Jersey and the Pennsylvania Central Railroad to Pittsburgh, by the Pittsburgh, Fort Wayne and Chicago Railroad to

Chicago; by the Chicago and Northwestern to Denison, Iowa, thence by stage to Omaha; or by the Chicago, Burlington and Quincy and the Hannibal and St. Joseph to St. Joe, Missouri, thence by the packets *Denver* and *Colorado* up river, forty-eight hours of steamboating with bands playing and colors flying; and they all foregathered at Omaha on Monday morning, October 22.

The major portion arrived well fed. The steamboat menus, of old-time river glory, titillate the ravished senses of this degenerate day. Soup, fish, meats boiled and roasted, with sugar-cured ham and champagne sauce as crescendo; cold dishes, ten, including buffalo tongue; entrées, thirty; game—larded antelope, brazed bear, saddle of venison, mallard and teal ducks, larded grouse, quails on toast, wild turkey, rabbit pot-pie; vegetables eleven, relishes seven, pastries eighteen, desserts six, eked out with oranges, pecans, almonds, raisins, apples, figs, grapes, peaches, filberts, pears, tea, coffee and chocolate; Horn of Plenty, Pyramid of Sponge Candy, Gothic Pyramid of Rock Candy, Nougat Vase, as "ornaments."

Stars attach to the names of the officials and guests; the printed columns in the *Railway Pioneer* (that ephemeral journal especially issued) reads like a roll of honor. President John A. Dix had been appointed minister to France, and sent his hearty regrets. Vice-President Durant, the indefatigable, headed the company's staff. General Superintendent Samuel Reed was ill, Assistant Operating Superintendent Hoxie "the

Ubiquitous" was master of ceremonies up the Missouri to Omaha, and his chief, Webster Snyder, conducted over the road.

There were present, in addition, for the company: Directors Edward Cook, of Iowa; Sidney Dillon, of New York; C. A. Lambard and John Duff, of Massachusetts, and Congressman Charles T. Sherman, of Ohio; from the Government: Government Commissioners General J. H. Simpson, of Washington; General Samuel R. Curtis, of Iowa; Colonel William M. White, of Connecticut; Engineers General Dodge, of Iowa, and Colonel Seymour, of New York; the two Casements.

Among the guests: Senators J. W. Patterson, of New Hampshire; J. M. Thayer and T. W. Tipton (elect), of Nebraska; Rutherford B. Hayes, of Ohio; Benjamin Wade, of Ohio, with a Ballard rifle for antelope shooting, in which he had more success than in his subsequent gunning for the presidency and vice-presidency; the Earl of Arlie, England; Monsieur O'Dillon Barrot, secretary of the French legation; Marquis Chambrun, of Paris; General John Bates, Major General Philip St. George Cooke the peppery, and his staff, of the Department of the Platte; John Crerar, of Chicago fame; the merry George Francis Train, wife "and maid"; Kinsley, the rising caterer—a welcome accession; Joseph Medill, the Chicago *Tribune* chief; Luther Kountze, the Omaha banker; George M. Pullman, the sleeping-car inventor; Robert T. Lin-

coln, of Chicago, and a nation's love; Governor Alvin Saunders, of Nebraska; Chief Justice William Kellogg, of Nebraska; Secretary A. S. Paddock, of Nebraska; Editor "Giles," of the Council Bluffs *Bugle;* Editor Burke, of the Council Bluffs *Nonpareil;* John Jones—these and such as these, with their ladies and their scions, to the number of two hundred, not forgetting Photographers Carbutt and Hien, the Great Western Light Guard Band of Chicago, and Rosenblatt's Band of St. Joe.

Omaha did itself proud with a ball and an exhibition of all its Aladdin industries peculiar to its sudden elevation as a railroad mart. And the excursionists, bedecked with ribbons and rosettes, were "somewhat astonished to find themselves, after a week's journeying westward from New York, still among people of wealth, refinement and enterprise."

"The excursion train [leaving at twelve o'clock, October 23] consisted of nine cars drawn by two of the Company's powerful locomotives." Deference evidently was accorded to the weight, mental, moral and financial, of the personnel embarked. At the rear, as balance, there was the Directors' car, "devoted to members of Congress and other distinguished guests, who felt desirous of making a critical examination of the road and adjacent country." Next forward there was "the celebrated Government, or Lincoln car, the private property of Mr. Durant," and occupied by himself and personal party. Forward of this, four fine

coaches built at Omaha, and now turned over to the excursionists *en masse*. Then the "mess or cooking car"—which is designated as always accompanying the Directors' car as tender. Then a mail-car "conveniently fitted up as a refreshment saloon." Then the baggage and "supply" car, and the engine "profusely decked with flags and appropriate mottoes."

"The whole outfit presented a most imposing appearance as it left the Missouri Valley and steamed away toward the Rocky Mountains."

Never will another such railroad excursion occur, in the history of the Republic; never again will a concourse like to this be introduced, a happy family, to the freedom of the plains.

Kinsley catered—lunch was served at once through the cars; Joseph Medill, the Earl of Arlie, the Marquis Chambrun, George Pullman, Major General Cooke, Monsieur Barrot, John Crerar, George Francis Train, the Duffs, the directors, the commissioners, the senators, John Joneses—they ate and quaffed; Rosenblatt's and the Great Western Light Guard Band played; the officials—Durant, Dodge, the Casements, Snyder, Hoxie, Special Conductors Bunker and Colonel Gesner and the brakemen answered questions, and the train rolled on into the New West, following the wonderful transcontinental rails.

At evening an illuminated encampment covering several acres of Columbus town was found awaiting occupants. Hoxie speedily announced supper. There

was a war-dance by Major Frank North's Pawnee scouts—" and the congregation of lady and gentlemen spectators were only too glad to know that the Indians were entirely friendly." After which, warned by the " waning moon and campfires," the bursting Easterners were stowed in family tents, where, upon soft hay mattresses under buffalo robes and blankets, they were wooed to slumber by the howling of the distant wolf and the " subdued mutterings " of the Pawnees.

At dawn an alarming Indian serenade, of unearthly whoops and yells which demanded the quieting reassurances of Vice-President Durant, General Dodge, and others. A " sumptuous breakfast." A journey onward. Farther along, the main encampment of the Pawnee guardians of the road, and a halt for a sham battle in which mock Sioux were defeated and scalped by the Pawnees. Lunch. Supper and another large tented area at the 279 mile-post, thirty miles beyond the 100th meridian. Miracle of miracles! Would wonders never end—and would the track never end?

Yes, upon the morrow. Meanwhile telegraph office and printing office were set up. In the morning a bath all together in the Platte; breakfast; meeting called for nine o'clock in the public square of this camp No. 2, U. P. R. R., Buffalo Co., Nebraska, for the purpose of " locating a city, the election of a Mayor, City Council," etc.; announcement of a buffalo hunt for all inclined to the same; and thereafter a trip to end o' track, eight or ten miles on, where as an exhibition the Case-

ment Paddies laid eight hundred feet of double rails in half an hour.

In the evening, fireworks—a profusion "shooting and whizzing through the air for more than an hour"; a concert at "Bunker Hill" and a lecture upon phrenology, with the George Francis Train head as an object lesson.

In the morning, again much picture-taking, preceding the call "All aboard" for homeward bound. On the way, a stop at the 100th meridian arch; another to inspect the prairie-dog town twenty-five miles square; another to view a night prairie fire, prepared in advance by the obliging and resourceful Durant.

"What surprise awaits us next?"

"When, and where will these wonders cease?"

"We did not know that this was in the program!"

After Omaha, Chicago once more; and a thanksgiving meeting in the Opera House (well reported by the Chicago *Tribune*), where full meed of praise was bestowed upon the railroad hosts, upon the Pacific Railway project as materialized, and upon those comfort-makers, Pullman and Kinsley.

No, there cannot be another excursion quite like this of the Sixties, in an emotional America spendthrift of sensibilities lavished upon the new and yet tribute to the old: when the senatorial frock coat was a toga and the senatorial presence was Jovian; when Patti sang and Edwin Forrest declaimed, and Ole Bull was master of the violin; when Artemus Ward and George Francis

Train lectured and General Tom Thumb toured and Petroleum V. Nasby wrote; when Murat Halstead edited the Cincinnati *Commercial,* Joseph Medill and Horace Greeley their *Tribunes,* and the satire and poetry of George D. Prentice, of the Louisville *Journal,* were still preserved in household scrapbooks; when the memory of Kossuth was green, and Edward, young Prince of Wales, had stood upon the balcony of the Continental Hotel in Philadelphia, gazing at the riotous celebration by the Lincoln "Black Republicans"; when "Uncle Tom's Cabin" and P. T. Barnum's museums thrilled; when in the Far West beyond the Mississippi the Holladay stages lumbered at schedule of five miles an hour across the plains and mountains, and in the East a Colorado quartz miner had introduced that astonishing luxury the sleeping car, wherein one might with propriety disrobe in public; when in the typical East no lady would be caught at large without her crinoline and balmoral, and in the typical West no gentleman without his "shooting-iron" and scalping-knife; when buffalo tongue and antelope steak vied with Delmonico's terrapin, and new Eldorados with Wall Street; when there beyond the frontier Kinsley served, the Light Guard Band played, Train expatiated, the Pawnees danced, and broad-cloth and furbelow, transported upon the Bagdad carpet of the first transcontinental railway, picnicked gaily in the wild outland 1600 miles from home.

This summer Brevet Brigadier General James A.

Rusling also had viewed end o' track, at Kearney, on his way by stage to inspect the army posts of the West. He briefly reported upon progress and hastened on, to write more at length upon the Central, then reaching out for Cisco and a winter station.

The records of the early travellers from the Missouri River borderland form an index of the periodic march by the Pacific Railway.

In May of 1867 Colonel Alexander K. McClure, Republican leader in Pennsylvania and later to establish the stanch Philadelphia *Times,* first journeyed into the trans-Missouri West, on a tour to Salt Lake City. The Chicago and Northwestern had recently connected to Council Bluffs opposite Omaha, " by throwing up a few feet of embankment on the usually level plains of Western Iowa and laying the superstructure without ballast." The rate of speed over the uncertain tracks undermined by the spring thaws was from six to ten miles an hour, and interrupted by frequent wrecks; after a fast of thirty-six hours broken by hard-boiled eggs and bacon at an Irish section-house, the passengers were stranded at ten o'clock at night four miles from the Missouri. Here they waited twelve hours, and were conveyed, breakfastless, by improvised stage to the ferry. Time from Chicago, two and one-half days.

The Union Pacific was complete to North Platte, 293 miles. The trip out registered upon Colonel McClure by its lack of interest save for the buffalo herds, the antelope, the prairie-dogs, and a hundred miles

without sign of human habitation aside from a few station shanties.

He found President Brigham Young torn between anticipation and apprehension; "the day that the iron horse first sang his song in the valley of Utah dated the decline and fall of the Mormon ruler."

Vice-President Durant now travelled out in state with the Government directors, in a brand-new equipage—a Pullman "hotel car" christened the "Western World"—that supplied sleeping berths at one end and at the other a kitchen from which meals were distributed.

In September of the same year a second party of distinguished citizens travelled over the Union Pacific —this time from Omaha to milestone 460, halfway between Julesburg and Cheyenne. The special train bore a portion of the United States "peace commission" to sit with the Sioux and the Cheyennes: General Sherman (who upon his nail-keg in 1865 had lamented that probably at his age he could not expect to live out the completion of a transcontinental, but now with faith in the Casements and General Dodge had revived hopes), General Alfred Terry, the Hero of Fort Fisher, and Congressman John B. Henderson, of Missouri; also the young Henry M. Stanley, at this date only the correspondent from the Indian Country for the Missouri *Democrat* and the New York *Herald,* and with the Dark Continent unknown to him; and Frederich Gerstaecker, of the Cologne *Gazette,* pursuing that ad-

venture in western America which turned to gold under his pen.

Reporter Stanley took breakfast in the Casement boarding-car at end o' track. Incited by Captain D. B. Clayton, the track-laying superintendent, the U. P. force laid twenty-five pairs of rails, or seven hundred feet, in five minutes!

"At that rate," Stanley accepted, "sixteen and a half miles of track could be laid down in one day."

So they could, but they never were.

Sixty-eight, that year of real conquest upon the plains and in the Rockies, following the years of conquest in the Sierra, saw the remarkable influx along the U. P. of the newspaper excursionists, who wrote that people might read and run. It saw also an inspection visit, the most notable yet.

There had been some differences between the views of the company engineers as to the most practicable and thorough line, and of the contractors, who proposed lines more profitable for themselves. Consequently, stirred by the perplexed Government commissioners upon whom hinged the acceptance of the road, the interested General Grant and the lively General Sherman came out themselves in July to investigate for the Government. General Grant was then slated for the Presidency.

With them came General Sheridan, commanding the Military Division of the Missouri; General August Kautz, who in 1865 had led the colored troops into

Richmond; General Joseph H. Potter, who had won his first brevet at the battle of Monterey, and others at Fredericksburg and Chancellorsville; the doughty, hard-fighting and hard-swearing but altogether splendid old General William S. Harney, beloved by rank and file in spite of his temper; General Frederick T. Dent, Grant's brother-in-law and West Point classmate, now lieutenant colonel of the Twentieth Infantry but brevetted three times during the war; General Adam J. Slemmer, lieutenant colonel of the Fourth Infantry but wearing honors won at Murfreesborough, and now within two months of his death; U. P. Vice-President Durant (of course) and Director Sidney Dillon again.

Generals were plentiful at this period; but as General Dodge remarks: "Probably no more noted military gathering has occurred since the Civil War."

He was wired to meet the party at Fort Sanders, three miles south of new Laramie, west of the Black Hills, where Colonel John Gibbon, late commander of the Twenty-fourth Army Corps under Grant at Lee's surrender, guarded the railroad line against the problematical red protégés of last year's "peace commission."

General Dodge had come in from the survey country. A procession of the children attached to the post and to the railroad camps nearby was formed, met the special train at the station, and had the never-forgotten privilege of shaking hands with General Grant. The dispute over the grades was adjusted in the engineers' favor, and the Durant Pullman conveyed the brilliant

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THE GENERAL GRANT INSPECTING PARTY AT FORT SANDERS, WYOMING, JULY, 1868

From left to right—Gen. August Kautz, Gen. Philip H. Sheridan, Mrs. Potter, Gen. Frederick Dent, Mrs. Gibbon, Gen. John Gibbon, Master John Gibbon, Gen. U. S. Grant, Katie Gibbon, Mrs. Kilburn, Allie Potter, Chief Engineer G. M. Dodge, Lieut.-Gen. William T. Sherman, Gen. William S. Harney, Dr. T. C. Durant, Gen. Adam Slemmer, Gen. Joseph H. Potter, Gen. Louis C. Hunt.

party to end o' track, then 100 miles farther on, at the western end of the Laramie Plains, or 670 miles from Omaha. The construction gangs hailed "Old Bill," great "Little Phil" and "Unconditional Surrender" with Union cheer and Rebel yell mingled.

On the return eastward 15,000 persons greeted Grant at Omaha; among them the impecunious lawyer and amateur journalist J. H. Beadle, Southern Indianan, whom a graveyard cough, a family physician, a book-peddler fund, and a roving commission from Halstead's Cincinnati *Commercial* had encouraged to "go west."

He now retraced the steps of the Grant generals, but not in a private car; saw much and wrote whereof he saw; was flat amidst the giddy whirl of Benton terminus, 690 miles out on the edge of the Red Desert; in rôle of trudging mule-skinner beat the rails into the Salt Lake Valley; and having served an unprofitable apprenticeship as Gentile editor to the Latter Day Saints eventually rode home upon the completed road.

Thus they chased end o' track on the Union Pacific: soldiers, statesmen, writers and pleasure-seekers, month to month finding it farther and farther on, its wonder undiminished. Nor was the Central slighted, although still remote to public inspection.

Bowles, Colfax and Richardson had proclaimed it; General Rusling had praised it; in February of 1868 the General W. J. Palmer party, having surveyed from Fort Wallace of western Kansas to San Diego for an

extension of the Kansas Pacific to Southern California (a route the forerunner of the Santa Fé trademark), faced homeward over the Central from Sacramento. An engine to pull and an engine to push rolled the wayfarers up to Cisco. The mountain scenery appealed to Dr. William Bell, the chronicler, as "Alpine in character"; the pines were buried to their branches in the snow; one pass reminded of the Col de Balme into the Val de Chamonix.

At Cisco the warmed cars were exchanged for the Overland Mail Company sledges and forty feet of snow underneath; at Donner Lake transfer was made into mud-wagons, with two feet of mud underneath; and at the Black Hills the stage journey veered south to Denver, for all traffic on the Union Pacific had been stopped by snow on the plains eastward.

Charles Loring Brace, the Yale schoolman and the newsboys' friend, likewise inspected to Cisco this spring; by climb "slow and careful," as befitting ascent awheel of the "American Alps"; found the project comparable only with the Austrian Government's Brenner Pass Railroad, in the Tyrol; from the summit beyond Cisco thought upon "the fearful wilderness between the Sierras and Salt Lake," bare of fuel and timber; and with all credit rendered to the energy of the Californians, reflected that "the cost of the road and the great expense of running it will always be an obstacle to cheap freights or low rates."

"Men experienced in these matters doubt if they

[the transcontinental roads] ever carry freights of importance from one coast to the other, except the lightest and most valuable. But they created a large local traffic, and find their great profits from way-business." In this last sentence Brace was a prophet unreckoned.

There should not be omitted the Government commissioners—most assiduous of all the road inspectors at large, although rivalled by the Government directors.

Theirs was the duty of passing upon the track in sections of twenty miles. Their faithfulness is demonstrated in the tabulated reports, comprising thirty-six trips over the U. P. in three years and a half, inspecting stretches, of which the longest was forty miles, all the way from Omaha to the 1033rd mile-post, five miles out of Ogden.

Some untoward incidents slightly marred the records. One official suggested an approval fee of $25,000; in order to lose no time in quibbling, when the race with the Central was particularly hot the company shunted its temporarily unwelcomed mentors over a ten-mile leg of Echo Canyon in the night; but as a rule the commissioners and directors were open-minded and fairly met. They might not have been railroad men, but they were patriotic.

A special car was placed at the disposal of commissioners and directors. Sometimes it was the superintendent's car, sometimes the Dodge "travelling arsenal," sometimes the Durant Pullman, and occasionally the Lincoln car.

This car had been built at the Military Car Shops, Alexandria, Virginia, in 1864, for the use of the President and to meet his ideas. Heavy boiler iron was placed between its inner and outer walls; there were kitchen and dining service, and an extraordinarily long couch to accommodate his many inches. Lincoln was very fond of his acquisition—found much comfort therein; and it formed his funeral bier on the last journey from Washington to Springfield.[1]

Doctor Durant purchased it from the Government to be his own special; but becoming enamored of the Pullman cabinet-work creations and all their conveniences, he transferred it to the Union Pacific yards at the close of 1866. Thereafter it was at the disposal of the Government guests, when they did not stand out for a Pullman themselves.

Naturally, a certain sacredness pertained to the car which had been the travelling home of the martyred President; but the boiler-plate walls proffered a considerable appeal to those Eastern gentlemen who, essaying the plains of the '60's, preferred utility to ornament.

The commissioners for the Central were mainly of California and Nevada. It appears that they were not so constant in their attendance upon the track-laying as their Union Pacific colleagues. In 1867 they had accepted to the California line, 138 miles, with pro-

[1] Proper credit, however, should be given to statements by authority that President Lincoln never had occasion to use this car. On its first official trip it bore only his body.

visional acceptance of seventy-seven miles beyond. August 28, 1868, they had accepted forty more miles, or to the 255 mile-post; September 24, seventy-five miles to the 330 mile-post, February 18, 1869, 200 miles at the clip, to the 530 mile-post; and concluded when July 31 they approved of the remaining 160 miles to Promontory.

As soon as the date was declared for the joining of the tracks which should open the whole Pacific Railway to traffic, East and West prepared to make the grand tour.

On May 3 the first detachment of travellers designated to go through to the Coast by rail left the Atlantic border for Chicago, via the New York Central and Lake Shore Railroads; thence by the Northwestern for Council Bluffs and the ferry to Omaha.

Of their adventures the worthy W. L. Humason, Massachusetts bred, is the chronicler in his eminently New England tale "From the Atlantic Surf to the Golden Gate," or "First Trip on the Great Pacific Railroad." This was the pioneering train which failed to arrive in time for the May 8 date at Promontory; and what with vigilantes *en route,* Indian scares, washouts, and a wild night at Wasatch, where one death occurred under the car windows, nobody to-day will envy Mr. Humason his "first trip."

At Promontory, May 11, there was a wait of all day. The Central train appeared at dark, but lacked sleeping-cars. The meeting of the tracks had beaten the

delivery of such equipment by two months. So we may dismiss the excursionists, dusty and heavy-eyed, where they meet the first of the east-bound trains at Colfax and are bombarded with queries "concerning the road, the eating-houses, and the Indians."

The passengers from California and way points arrived at Omaha on May 16: 500 of them, in two sections. Two trains a day each way were soon needed. The Pacific Railway had opened a new world.

The regular schedule between Sacramento and Omaha was five days; between Sacramento and the Atlantic coast, six and a half days. For example, by schedule of May, 1869, one left Sacramento early in the morning of a Monday; arrived at Ogden about 12:30 of Tuesday noon; arrived at Omaha at 10 a.m. Friday; arrived at Chicago at 10 a.m. Saturday; arrived at New York shortly after noon of Sunday. San Francisco added twelve hours to the trip.

Counting the rail and steamer connections for San Francisco, the first-class fare across continent then was $173; sleeping-car rates, $2 a day and $2 a night; meals at the dining stations, from $1 to $1.25—"a pretty steep price to pay for fried ham and potatoes," Mr. Humason submits.

The through tariff was reduced, in time. Rates between Omaha and San Francisco remained at $100 first-class, $75 second-class, $40 "emigrant"—which might sound attractive did the prospective tourist not comprehend that the emigrant cars were attached to

the freight trains, with schedule uncertain. The rate across continent was $139 first-class, $109 second-class, emigrant $65. Children under five years, free. Pullman: New York and Chicago, $5; Chicago and Omaha, $3; Omaha and Ogden, $8; Ogden and San Francisco, $6. Total, $22.

The Central was pronounced the better built, the Union Pacific the more interesting. However, the Union division was soon improved over its initial construction. It had been built upon the sound railroad principle of a well-surveyed route as a basis; for no tinkering with equipment can make a good road out of a poorly-located line.

The great Pacific Railway now entered into business with colors flying. The American people discovered that their speculative dreams were more than realized. No such trains de luxe had been known in the East like to those rumbling across plains and deserts and mountains in the Far West. The change from the toilsome, cramped Concords was miraculous.

Upon the Union Pacific the best Pullman palace and sleeping cars that the new corporation in Chicago could turn out were put into service. It was good advertising—the reports in the newspapers and periodicals by rapturous travellers paid as much attention to the conveniences as to the scenery.

In May of 1870, after the transcontinental route had been in operation only a year, the famous "Hotel Train" from Omaha clear through to San Francisco

without transfer was tried. It was the mother of the future Pullman limiteds: left Omaha weekly, with equipment of three sleepers, a diner and a buffet or "lounging" car; excess fare to Ogden, $10. The terminus proved to be Ogden, for the Central Pacific finally declined to join the scheme. Eventually the service was discontinued.

This same month the Boston Board of Trade recognized the spirit of the day by chartering a train through from the Atlantic to the Pacific. A daily paper, entitled the *Trans-Continental,* was published *en route,* and by resolutions of the passengers called attention of New England to the enterprise exhibited in Far Western traffic.

In September another triumph in luxurious railroading occurred, when by invitation of the general traffic agents of the Union Pacific and the Central Pacific a large delegation of Eastern and Southern general agents was taken from Chicago to Ogden in a special train, composed of five Pullman drawing-room and sleeping-cars, a smoking-car, two lounging-cars fitted with couches, easy-chairs and a "stationary organ," and a baggage-car; thence to San Francisco by six of the Central's "Silver Palace" sleepers and a smoker—the superintendent's private car, supplied with California fruits and wines, being attached at the rear.

Before adopting the Pullmans the Central Pacific made shift with its independent brand of sleeping and lolling accommodations—the Silver Palace cars. In

the opinion of travellers, these were inferior to the Union's Pullmans: they were plainer, and lacked the obliging special conductor. In his stead the negro porter officiated as both officer and private—a source of dissatisfaction to those tourists who out of much petting had already grown captious.

The facile Mr. Pullman had followed his "hotel car," the Western World, which so fascinated impressionable Doctor Durant, with his regular dining-car, the Delmonico, in 1868; and this innovation was being used upon Eastern roads. The Pacific Railway clung to the system of meal stations on such a long haul as that comprised by its schedule.

In truth, at the first some of them, particularly upon the desert, were execrable—as attested by the objector, Tourist Humason, and others. Their offerings seem to have been the old-time greasy, dirt-infested, hard-fried menus of the stage stations, where if the traveller didn't like the mustard he might help himself to the pepper sauce.

But speedily they revised their dishes, in tribute to finicky patrons from afar. At Grand Island, Nebraska, "they give you all you can possibly eat"; Sidney specialized in antelope steak, and, for breakfast, "there were given us eight little dishes apiece, containing hot beefsteak, two slices of cold roast antelope, a bit of cold chicken, ham and poached eggs, a couple of boiled potatoes, two sticks of sweet corn, stewed tomatoes, and four thin buckwheat 'hot cakes' laid one on top of the

other," all to be disposed of by the vehicle of one knife and fork in thirty minutes. Surely nobody but a Britisher could have objected to this *al fresco* lay-out.

Cheyenne's dining-room was a perfect museum of big-game heads staring down upon the tables. Laramie supplied famous beef from the Laramie Plains; isolated Green River of the Wyoming desert bragged of its biscuits; Evanston, high up in the Wasatch, of its mountain trout and Chinese waiters; Elko, Winnemucca and Battle Mountain on the Central's Humboldt Plains of their California fruit centre-pieces, their vegetables, range beef and spring water; Humboldt of its apples; Colfax in the Sierra of its fish and fresh vegetables.

Meals were one dollar greenback, or west of Ogden were seventy-five cents silver—except that at Lathrop, near San Francisco, they were fifty cents. Many a passenger looked forward to Lathrop the generous.

Thus the Far East and the Far West toured across, back and forth; over mountains and through desert, in their Pullman Palace and Silver Palace domiciles connected by draw-bar and link-pin, twitched along by the brass-bound Colorado, General McPherson, Rogers-119, Jupiter-60, the Tiptop, the Texas, the Hurricane and the Gladiator; and the wonder ever grew.

The pronounced features of the overland travel by half a dozen railroads to-day were concentrated and accentuated by the one road then: the California Forty-niner, upon a train for the first time in twenty years, returning "home" in six days over the route

upon which he once had toiled for six months; the alkalied desert prospector, spending the last of his grub-stake to "get out" and recoup; the bullwhacker, rocking along at a steady sixteen and eighteen miles an hour, and gazing superciliously at the old-fashioned prairie schooners and deep-bellied Conestogas plodding over the plains at their two and a half miles an hour; the San Francisco merchant and banker, on a business flier to New York; the white-faced, gentlemanly gambler, always agreeable to helping "pass the time away" by a little game of cards; the "States" tourist, wide-eyed for buffalo, Indians and prairie-dogs; the flat-chested, hectic health-seeker, fearful of the elevations, warned to move slowly when he stepped out upon Sherman Summit, 8000 feet, but already "feeling better"; the army officers bound to their frontier posts by steam instead of by saddle or ambulance, and the naval officers short-cutting to their Atlantic or Pacific stations; the globe-trotter European with his questions and his notebook.

For the Continent sent its emissaries to witness and partake. This was the longest railroad and the highest in the world—a piece of Yankee legerdemain. The Britisher himself yielded to admiration. He compared the plains and mountain comfortable travel in the New World to the first-class trains out of his own London, and concluded to write to *The Times*. The scenery along the great highway enthused his pen and provided him with material for enlightening volumes. There

were a few free-and-easy customs that somewhat rankled, but in the main he warmed with just appreciation. That beloved emigrant of 1876, Robert Louis Stevenson, magician in words, voiced him in paying the meed: "It seems to me, I own, as if this railway were the one typical achievement of the age in which we live."

Guidebooks, of course, sprang up full-bloom. Among the first, Samuel Bowles's rehashed and boiled-down "The Pacific Railroad—Open. How To Go: What to See." Simultaneous, Crofutt's "Trans-Continental Tourists' Guide," semi-annually issued. Then Williams's "Pacific Tourist and Guide Across the Continent," and Lester's "The Atlantic to the Pacific. What to See, and How to See It."

Compendiums of kindly wisdom, these:

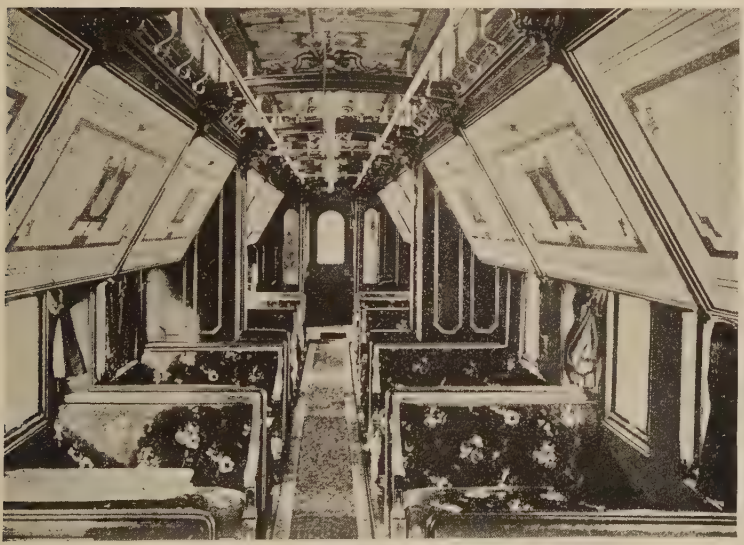
"It is not customary, it is not polite, it is not right or just for a lady to occupy one whole seat with her flounces and herself, and another with her satchel, parasol, big box, little box, bandbox and bundle."

"Fee your porter on the sleeping-car always—a moderate allowance, twenty-five cents per day, for each day's travel."

"Prejudices against sleeping-cars must be conquered at the start. They are a necessity of our long American travel."

"The traveller notices with interest the ever-frequent wind-mills which appear at every station, and are such prominent objects over the broad prairies

THE "LINCOLN CAR"
Acquired by the Union Pacific in 1866 and used as a directors' car during construction days



INTERIOR OF AN EARLY PULLMAN CAR, U. P. R. R.
By Courtesy of Union Pacific System

. . . Probably no finer specimens exist in the United States than are found on the lines of this road."

"In packing your little lunch-basket, avoid *tongue, by all means,* for it will not keep over a day or two, and its fumes in a sleeping-car are anything but like those from 'Araby the blest.'"

XI

Checking Up.

Scarcely had the Promontory Summit celebration been concluded when the two companies proceeded to bargain over the common terminus directed by Congress to be "at or near Ogden." The exact distance by Union Pacific track from Ogden computed at 53.56 miles. The Union Pacific offered forty-five miles of this for $4,000,224.96. Washington scaled the price down to $3,000,000; and for forty-seven and one-half miles, to within about five miles of Ogden, the Central paid the $3,000,000, largely in bonds, which reduced the cash consideration to $2,698,620. The remaining five miles were later leased. Thus the Central got to Ogden after all.

In June, 1870, it absorbed the Western Pacific, which had been its protégé for some time. This rounded out the all-rail route from New York to San Francisco.

The Union Pacific was rather in a hole as regarding its work between Ogden and Promontory. Congress had interfered without warrant to quash a winning game; and moreover the Central, by expending some $700,000, appeared designing to build into Ogden in defiance of the U. P. tracks. The Big Four had no notion of resting content with their eastern terminal marooned in the desert.

Upon contract figures the Union Pacific Railroad

from Omaha to Ogden cost $93,546,287.28; the United States Pacific Railway Commission asserted that the actual cost to the contractors was $50,720,958.94, and further asserted that the real outlay had been only $38,000,000. The expert who was put at work upon the company books eighteen years after the Promontory Summit celebration found sums indicating that the cost of the road to Promontory was $98,309,880.77; also, to date of December 31, 1869, there were total construction charges of $88,500,000, $100,000,000, and in between. He complained of the bookkeeping.

Figured by contract estimates the cost of the Central Pacific Railroad of California, to the company, from Sacramento to Promontory, was $71,116,828.15. Upon the company books the construction expenditures to the close of 1869 were $85,401,554.76—and again $94,000,000.

The guidebooks' statement that the Pacific Railway cost over $181,000,000 may not have been far off; as a matter of fact, the longer one summed and the more one examined the accounts the larger and more perplexing grew the totals, for such a railroad never is "completed" in the full sense of the word. The meeting of the rails at Promontory was only the end of a paragraph, and the past expenditures trooped forward into the reckoning of the present and the future.

The Central Pacific builders had started out upon their own initiative and at their own risk—and here was their road. Of the Union Pacific builders the Gov-

ernment had demanded another road—and here it was, too. "Five eminent citizens" were appointed by Congress to inspect and render verdict. They inspected in August and September, 1869.

They found the Union Pacific with a location line highly creditable to the engineers and to be a road that "compared favorably with a majority of the first-class roads in the United States." They recommended the application of $1,586,100 in further improvements.

They found the Central with a line adequate to the purpose, and "capable of doing its business with safety and dispatch." They recommended $576,650 in improvements.

In Government bonds there were issued or due: To the Union Pacific, $27,236,512, face value, discounted upon the market to $27,145,163.28; to the Central Pacific, $25,885,120, face value, turned into gold at a discount of about $7,000,000.

The Union Pacific issued its own first mortgage bonds in the sum of $27,213,000; the Central's own first mortgage bonds aggregated $23,349,000.

Of land there was due the Union Pacific 11,309,844 acres valued at $1.25 an acre—but a considerable portion worth not fifty cents in the beginning; to the Central Pacific, 8,000,000 acres, of like variation. As sold, these lands were averaging $4.50 an acre—a tribute to the influence of the railroad upon barren ground.

Before pursuing the payments of bonds and lands the careful Secretary of the Interior wished to know

whether or when the Pacific Railway contract with the Government had been completed. In course of time and controversy the Secretary of the Treasury alleged that the Central Pacific had been completed July 16, 1869; the Union Pacific, November 6. The Government directors of 1873 proffered that the two roads had been completed according to specifications June 30, 1870; a special commission of 1874 set the date of completion at October 1, that year; the Supreme Court of the United States inclined to November 6, or thereabouts, 1869, again. However, during the discussion the Pacific Railway had been operating right along, and giving returns to the Nation commensurate with its outlay, although not unmolested by the critics.

The Government had profited at once by raising the price of public lands contiguous to the line—Platte Valley lands, which to Reporter Stanley had appeared "to afford meagre chances for the agriculturist," and upon which, in 1865, he had counted from the stage-coach fifteen hundred skeletons of oxen, horses and mules—from $1.25 an acre to $2.50. The Overland stages had been carrying 1000 pounds of mail daily on a contract of $1,800,000 a year, schedule for delivery from the Missouri to California, during eight months of the year, sixteen days; in 1870 6000 pounds daily were being delivered in four days and a half, between Omaha and San Francisco, at a year's expense of $513,000.

Quick delivery and low freight charges spelled ruin

for Pacific coast merchants caught imprudently overstocked; 7000 teamsters on the plains and deserts were thrown out of work, but the annual expense of $8,000,000 in transportation was reduced to $1,300,000.

The military departments and General Sherman were jubilant. Troops could now be forwarded at the speed of 500 miles in twenty-four hours—a distance that previously would have required a full month of "painful marching." The solution of the Indian wars was seen; but that arrived more slowly by fact than by fancy. The Santa Fé and the Northern Pacific and the Southern Pacific were yet needed. They were coming. In less than two years after the joining of the first transcontinental's tracks, the Northern Pacific, the Atlantic and Pacific and the Texas Pacific had been launched under Government auspices.

The people of the United States continued their lively interest. In 1869 the Central Pacific handled almost 30,000 through passengers. In 1870 the Union Pacific passengers numbered 142,623. These were but the feeble advance tricklings of a mighty flood.

In 1869 the population of the five States and Territories traversed by the Pacific Railway was 820,000; within a year it was over a million. The "uninhabitable waste" assumed to extend, with break of only the Salt Lake Valley, from 200 miles west of Omaha to the California border aroused and opened its bosom for the magic touch of water. And as if in answer, the rain-belt soon began to march westward at the rate of eight miles a year.

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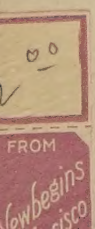
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